

STANDARD TREATMENT PROTOCOL (STP) FOR BASIC HEALTH SERVICES (BHS) PACKAGE 2078



Ministry of Health and Population
Department of Health Services
Curative Service Division
Kathmandu, Nepal

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Department of Health Services
Curative Service Division
Kathmandu, Nepal

विरोध खतिवडा
Birodh Khatiwada

स्वास्थ्य तथा जनसङ्ख्या मन्त्री
Minister for
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पत्र संख्या(Ref. No.):

चलानी नं.(Dispatch No.):

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Few Words



Government of Nepal has made a commitment to achieve Universal Health Coverage for its citizens as per the global agenda and is working towards it in coordination with various supporting partners and stakeholders. As per the aim of the Constitution of Nepal 2072, National Health Policy 2076, Public Health Act 2075 and its Regulation 2077, Government of Nepal has an obligation to ensure availability of affordable and high quality basic health care services to its population. As per the Public Health act 2075: 'Every citizen has rights to accessible and affordable quality of Basic Health Care Services'.

I am pleased that the Ministry of Health and Population through its Department of Health Services (DoHS), Curative Service Division has led the development of the "Standard Treatment Protocol (STP) for Basic Health Services (BHS) Package 2078". This treatment protocol for BHS provides clear guidelines to health care workers for providing services to a high standard and ensures quality essential health-care services to every citizen. It thereby also contributes to achieving the Sustainable Development Goals and Universal Health Coverage in Nepal.

I believe, this Standard Treatment Protocol will prove to be an important foundation of services facilities at Federal, Provincial, and especially for Local government spheres in Nepal. It puts our country firmly on the path to realizing the Government of Nepal's commitment to all its citizens to provide accessible, affordable and quality basic health services. I congratulate all involved in developing this very essential protocol for delivering the Basic Health Services.

Birodh khatiwada

Minister

Ministry of Health and Population

भवानी प्रसाद खापुङ
Bhawani Prasad Khapung

स्वास्थ्य तथा जनसङ्ख्या राज्यमन्त्री
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नेपाल सरकार
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Preface



Provision of quality Basic Health Care Services to each Nepali citizen remains the priority of the Government of Nepal. Development and implementation of the Standard Treatment Protocol for Basic Health Care Services is essential to deliver high quality basic health services as per the aspirations of the constitution and the Public Health Regulation. I would like to congratulate Curative Service Division for leading the development of the Standard treatment protocol for Basic health services which lays the foundation for delivering high quality basic health care services.

I am confident the Ministry of Health and Population, DoHS alongside other line ministries and stakeholders will ensure effective and efficient implementation of this protocol. This protocol provides clear guidelines to health care workers for providing services to a high standard and ensure quality essential health-care services to every citizen which will contribute to achieving the Sustainable Development Goals and Universal Health Coverage in Nepal.

I convey my sincere thanks to all the experts, who contributed to development of the Standard Treatment Protocol for Basic Health Care Services and confirm my commitment to ensure its effective implementation.

Mr. Bhawani Prasad khapung
State Minister
Ministry of Health and Population



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Preface

As Nepal dawns into a new political and administrative system, the Constitution of Nepal 2072, National Health Policy 2076, Public Health Act 2075 and its Regulation 2077 included directives to provide quality Basic Health Services (BHS) to all citizens. I am very pleased to have this opportunity to present to our country this "Standard Treatment Protocol (STP) for Basic Health Services (BHS) Package 2078" developed under the leadership of the Department of Health Services, Curative Service Division.

It is our priority to improve access to and the quality of health care services delivered at the point of service delivery as explicitly mentioned in the Nepal Health Sector Strategy (2015-2020). The STP for BHS, which is very well aligned to the NHSS aspirations, will be a very important guide to the health workers at all levels to maintain and provide the quality BHS services to all citizens.

STP for BHS covers seven major parts, and along-with the general information, it includes guidance on common emergencies, preventive and promotive health services, curative services, Ayurveda and Alternative medicine, health promotion, investigation and drugs use for BHS services. The STP addresses all the components of the BHS package over 14 chapters. It also provides general guideline to health workers for its proper use, and on rational prescribing and use of antibiotics for providing basic health services. I hope this STP for BHS will help to improve the quality of BHS provision to all the Nepalese Citizens.

I express my sincere thanks to all the experts, who contributed to development of this STP for BHS and confirm my commitment to ensure its effective implementation.


Dr. Roshan Pokhrel
Secretary



Government of Nepal
Ministry of Health

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Foreword



The Constitution of Nepal has adopted health as a fundamental right by ensuring equitable access to health services and free Basic Health Services. The Government of Nepal with an aim to address contemporary health issues in the changed context formulated the National Health Policy 2076. The health policy emphasizes access to quality health services to the poor, marginalized and vulnerable group by adopting an equitable and rights-based approach to developing health programs. In addition to this, the Public Health Act 2075 and Public Health Service Regulation 2077 have also ensured quality Basic Health Services (BHS) to all as their citizen right.

The Constitution of Nepal has provided the country an opportunity to move forward on the path of a federal system of governance. This will help us to strengthen health services and its delivery system. Since Basic Health Services (BHS) is the rights of the people according to the Constitution (2072), Local governments have the responsibility to ensure the Basic Health Service of the people. In this regard, Ministry of Health and Population, Department of Health Services through its Curative Service Division (CSD) has led the development of the Standard Treatment Protocol (STP) for Basic Health Service Package (BHS), 2078.

A Technical Working Group (TWG) comprising representatives from various Divisions and stakeholders was formed for the development of the BHS STP. After several consultative meetings and workshops with experts, health care providers from different levels responsible for providing BHS, stakeholders and peer reviewers, the final STP for BHS was developed.

I believe, this STP for BHS 2078, will be a very useful guide for health workers to provide quality Basic Health Service, under the responsibility of Local Level Government. I would like to thank Dr. Pawan Jung Rayamajhi, the Director of the Curative Service Division, Dr. Pomawati Thapa, Section chief of Basic and Emergency Health Service Management Section, CSD and her team for the untiring efforts along with all the stakeholders who have contributed to the development of the STP. I hope this STP will be useful for all levels of the government especially the local government for providing basic health service and for stakeholders while planning to provide Basic Health Service.

.....
Dr. Dipendra Raman Singh
Director General
Department of Health Service



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Date:-.....



Acknowledgement

The Curative Service Division (CSD) is pleased to introduce the Standard Treatment Protocol (STP) for Basic Health Services Package (BHS) 2078 that aims to ensure provision of quality Basic Health Services at the community. The STP for BHS 2078 is built on citizens' rights to accessible and affordable quality of Basic Health Care Services conferred in the Constitution of Nepal, Public Health Act 2075 and the Public Health Service Regulation 2077. We believe, this STP for BHS package will be a major step towards providing a solid foundation for delivering quality BHS to every citizen in Nepal. I hope this STP will serve as a very useful guide for providing quality Basic Health Services at various Levels of health facilities. It will also serve as a guide for health sector's leadership, planners, and managers for ensuring proper management of the BHS services at various levels of the government especially at the local level government.

To develop the STP for BHS Package 2078, CSD worked through a 15 members Technical Working Group (TWG) that included representatives from the government (MoHP, DDA, DoHS and its various Divisions and Centres) and external development partners (WHO, NHSSP, and GIZ). CSD would like to express its sincere appreciation to each TWG member for their enormous support in various stages of development of the STP providing expertise to shape the STP to make it people-centred. The work could not have been completed without their inputs. I would like to thank the leaders and expert teams of the Department of Health Services and its various divisions and centres, Department of Drug Administration and the Ministry of Health and Population, the Provincial Ministries and Health Directorates for their valuable suggestions through participation in workshops including for their review and comments on the draft documents. I would also want to thank the health workers involved in the development of the STP for providing their expertise and views to make it user friendly for the health workers as they are the ultimate users of the guide.

I would like to thank Dr Geetha Rana, and Dr. Binod Dangol for their lead role for drafting and finalising the STP for BHS package. My special thanks to NHSSP team for their continuous technical support in developing this STP. Special thanks to WHO and GIZ for their technical inputs in the draft of STP. I would also like to extend especial thanks to UKaid for the financial and technical support in development of the STP for BHS.

Dr. Pawan Jung Rayamajhi
Director
Curative Service Division

TECHNICAL WORKING GROUP (TWG) MEMBERS

1. Director, Curative Service Division (CSD), DoHS – Coordinator
2. Representative, Policy, Planning and Monitoring Division, MoHP – Member
3. Representative, Quality Standard and Regulation Division, MoHP – Member
4. Representative, Health Coordination Division, MoHP – Member
5. Representative, Deputy Secretary, Law Section, MoHP – Member
6. Representative, Family Welfare Division, DoHS – Member
7. Representative, Epidemiology and Disease Control Division, DoHS – Member
8. Representative, Management Division, DoHS – Member
9. Representative, National Public Health Laboratory – Member
10. Representative, National Health Training Center – Member
11. Representative, Department of Drugs Administration (DDA) – Member
12. Representative, World Health Organization (WHO), Nepal – Member
13. Representative, Nepal Health Sector Support Programme (NHSSP) – Member
14. Representative, GIZ, Nepal – Member
15. Section Chief, Basic and Emergency Service Management Section, CSD DoHS - Member Secretary

CORE WORKING TEAM CONTRIBUTED REGULARLY TO THE DEVELOPMENT OF THE BHS-STP

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B. Nepal Health Sector Support Programme (NHSSP)

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5. Dr. Paras Chipalu, Coverage and Quality Specialist (Quality)
6. Dr. Geetha Rana, Chief Consultant for BHS-STP
7. Dr. Binod Dangal, Consultant for BHS-STP
8. Mr. Prakash Ghimire, Health Assistant, Consultant for BHS-STP

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ABBREVIATIONS

ABCDE	Airway, Breathing, Circulation, Disability, Exposure
ADR	Adverse Drug Reaction
AEFI	Adverse Events Following Immunisation
AES	Acute Encephalitic Syndrome
AFB	Acid-fast Bacilli
AFHC	Adolescent-friendly Health Clinic
AFP	Acute Flaccid Paralysis
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
APD	Acid Peptic Disease
APH	Antepartum Haemorrhage
ARI	Acute Respiratory Tract Infection
ART	Anti-retroviral Treatment
ARV	Anti-Retro Virus
ASOM	Acute Suppurative Otitis Media
ASRH	Adolescent Sexual and Reproductive Health
ASV	Anti-snake Venom
ATT	Anti-tubercular Therapy
AVPU	Alert, Responds to Verbal, Responds to Pain and Unresponsive
BCC	Behavioral Change Communication
BCG	Bacillus Calmette Guerin
BD	Twice a day
BEONC	Basic Emergency Obstetric and new-born Care
BHS	Basic Health Services
BHSC	Basic Health Services Centre
BLS	Basic Life Support
BMI	Body Mass Index
BP	Blood Pressure
BTL	Bilateral Tubal Ligation
BW	Body Weight
CBE	Clinical Breast Examination
CCF	Congestive Cardiac Failure
CD4	Cluster of Differentiation 4
CEONC	Comprehensive Emergency Obstetric and New-born Care
CHD	Coronary Heart Disease
CHX	Chlorhexidine
CIN	Cervical Intraepithelial Neoplasia
CL	Cutaneous Leishmaniasis

CNS	Central Nervous System
COC	Combined Oral Contraceptive
COPD	Chronic Obstructive Pulmonary Disease
CPR	Cardiopulmonary Resuscitation
CPT	Cotrimoxazole Prophylactic Therapy
CRT	Capillary Refill Time
CS	Caesarean Section
CSF	Cerebrospinal Fluid
CSOM	Chronic Suppurative Otitis Media
CVA	Cerebrovascular Disease
CVD	Cardiovascular disease
CXR	Chest X-Ray
D&E	Dilatation and Evacuation
DBP	Diastolic Blood Pressure
DBS	Dried Blood Sample
DDA	Department of Drug Administration
DEC	Diethylcarbamazine
DHO	District Health Officer
DM	Diabetes Mellitus
DMPA	Depot-Medroxyprogesterone Acetate
DNA	Deoxyribonucleic Acid
DoHS	Department of Health Services
DPT	Diphtheria, Pertussis and Tetanus
DST	Drug Sensitivity Test
DUB	Dysfunctional Uterine Bleeding
EAC	External Auditory Canal
EC	Emergency Contraception
ECG	Electrocardiogram
ECP	Emergency Contraceptive Pill
EDCD	Epidemiology and Disease Control Division
EDD	Expected date of delivery
EMTC	Early Management of Trauma Course
ENT	Ear Nose and Throat
EONC	Emergency Obstetric and new-born Care
EPI	Expanded Program on Immunization
EPS	Extrapyramidal Symptoms
EPTB	Extra-pulmonary Tuberculosis
ET	Eustachian Tube
EWARS	Early Warning and Reporting System
F/U	Follow Up
FBF	Fortified Blended Food
FBMNCI	Facility-Based Integrated Management Of Neonatal And Childhood Illness
FBS	Fasting Blood Sugar

FHR	Foetal Heart Rate
fIPV	Fractional Injectable Polio Vaccine
FP	Family Planning
G6PD	Glucose 6-phosphate Dehydrogenase
GAM	Global Acute Malnutrition
GBS	Guillain-Barré Syndrome
GCS	Glasgow Coma Scale
GERD	Gastroesophageal Reflux Disease
GI	Gastrointestinal
GIT	Gastrointestinal Tract
GMP	Growth Monitoring and Promotion
GPP	Good Pharmacy Practice
GTCS	Generalised Tonic Clonic Seizure
GUD	Genital Ulcer Disease
Hb	Haemoglobin
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HHE	Hypotonic Hyporesponsive Episode
HiB	Haemophilus Influenzae Type B
HIV	Human Immunodeficiency Virus
HLD	High-level Disinfection
HMIS	Health Management Information System
HP	Health Post
HPF	High-power Field
HPV	Human Papilloma Virus
HR	Heart Rate
HRZE	isoniazid (H), rifampin (R), pyrazinamide (Z), and ethambutol (E)
HTN	Hypertension
I&D	Incision and Drainage
I/O	Input/Output
ID	Intradermal
IDA	Iron Deficiency Anaemia
IEC	Information, Education and Communication
IFA	Iron and Folic Acid
ILI	Influenza-like Illness
ILR	Ice-lined Refrigerator
IM	Intramuscular
IMNCI	Integrated Management on Neonatal and Childhood Illness
IPC	Infection Prevention and Control
IPT	Isoniazid Preventive Therapy
IUCD	Intrauterine Contraceptive Device
IUGR	Intrauterine Growth Restriction
IV	Intravenous

IYCF	Infant and Young Child Feeding
JE	Japanese Encephalitis
JVP	Jugular Venous Pressure
KMC	Kangaroo Mother Care
KUB	Kidney, Ureter and Bladder
LAM	Lactational Amenorrhoea Method
LF	Lymphatic Filariasis
LMP	Last menstrual period
LNG	Levonorgestrel
LPA	Line Probe Assay
LRTI	Lower Respiratory Tract Infection
LSCS	Lower Segment Caesarean Section
MA	Medical Abortion
MAM	Moderate Acute Malnutrition
MB	Multibacillary
MCL	Mucocutaneous Leishmaniasis
MDI	Metred-dose Inhaler
MDR	Multi-drug-resistant
MDT	Multi Drug Treatment
MEC	Medical Eligibility Criteria
MI	Myocardial Infarction
MMR	Measles, Mumps and Rubella
MNP	Micronutrient Powder
MoH/MOHP	Ministry of Health/ Ministry of Health and Population
MoH/MOHP	Ministry of Health/ Ministry of Health and Population
MR	Measles-Rubella
MSM	Men who have Sex with Men
MTB	Mycobacterium tuberculosis
MUAC	Mid-upper Arm Circumference
MVA	Manual Vacuum Aspiration
NCD	Non-communicable Disease
NG	Nasogastric
NHTC	National Health Training Centre
NLEM	National List of Essential Medicines
NS	Normal saline
NSAID	Non-steroidal Anti-inflammatory Drug
NSV	No-scalpel Vasectomy
NT	Neonatal Tetanus
NTC	National Tuberculosis Centre
NVP	Nevirapine
OD	Once a day
OPD	Outpatient Department
OPV	Oral Polio Vaccine

ORS	Oral Rehydration Salts
OTC	Outpatient Treatment Centre
OTP	Outpatient Therapeutic Programme
PA	Per Abdomen
PB	Paucibacillary
PCI	Percutaneous Coronary Intervention
PCR	Polymerase Chain Reaction
PEP	Post-exposure Prophylaxis
PHCC	Primary Health Care Centre
PHD	Provincial Health Directorate
PID	Pelvic Inflammatory Disease
PKDL	Post Kala-azar Dermal Leishmaniasis
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-child Transmission
PNC	Postnatal Care
PO	Per Oral
POCs	Product of Conceptions
PPE	Personal Protective Equipment
PPFP	Postpartum Family Planning
PPH	Postpartum Haemorrhage
PPV	Positive Pressure Ventilation
PR	Per Rectum
PrHO	Provincial Health Office
PRN	When necessary/occasionally
PS	Per Speculum
PTC	Primary Trauma Care
PUD	Peptic Ulcer Disease
PUO	Pyrexia of Unknown Origin
PV	Per Vagina
PWID	People Who Inject Drugs
QDS/QID	Four times a day
R/E	Routine Examination
RBS	Random Blood Sugar
RDT	Rapid Diagnostic Test
RF	Rheumatic Fever
RH	Reproductive Health
RHD	Rheumatic Heart Disease
RIG	Rabies Immunoglobulin
RL	Ringer's Lactate
RR	Respiratory Rate
RTH	Road to Health
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition

SARI	Severe Acute Respiratory Infection
SAS	Safe Abortion Services
SBP	Systolic Blood Pressure
SC	Subcutaneous
SDM	Standard Days Method
SFP	Supplementary Feeding Programme
SLE	Systemic Lupus Erythematosus
SMO	Surveillance Medical Officer
SN	Staff Nurse
SNCU	Sick New Born Care Unit
SOPs	Standard Operating Procedures
SOS	When necessary
SPO2	Oxygen Saturation
SSD	Silver Sulphadiazine
STD	Sexually Transmitted disease
STI	Sexually Transmitted Infection
STP	Standard Treatment Protocols
TB	Tuberculosis
TBM	Tuberculous Meningitis
TD	Tetanus Diphtheria
TDS/TID	Three times a day
TIA	Transient Ischaemic Attack
TSS	Toxic Shock Syndrome
TT	Tetanus Toxoid
UD	Urethral Discharge
URTI	Upper Respiratory Tract Infection
UTI	Urinary Tract Infection
VDRL	Venereal Disease Research Laboratory
VIA	Visual Inspection with Acetic Acid
VPD	Vaccine Preventable Diseases
VVM	Vaccine Vial Monitor
VZV	Varicella Zoster Virus
WHO	World Health Organization

यो उपचार पद्धति पुस्तिका कसरी प्रयोग गर्ने?

यो स्तरीय उपचार पद्धति पुस्तिकाको प्रयोग सम्बन्धमा प्रयोगकर्ताको सुविधा तथा यसको अधिकतम उपयोगको लागि यहाँ सामान्य जानकारी प्रस्तुत गरिएको छ । यस पुस्तिकाको सम्पूर्ण विषय-सूचीलाई २ भागमा विभाजित गरी सो को प्रयोग सम्बन्धमा निम्नानुसार जानकारी गरिएको छ ।

भाग १: सामान्य जानकारी (General Information):

- उपचारका खास पद्धतिबारे यस पुस्तिकाको विषय सूचीमा (Table of Contents) उल्लेखित अध्यायहरु हेरी पत्ता लगाउन सकिन्छ ।
- हरेक Chapter लाई Introduction, Diagnostic Features, Management Sections मा Divide गरिएको छ । Management Sections मा Treatment, Advice, Counselling र Coordination and Notification Section मा पुन Divide गरिएको छ र कुनै सरुवा रोग हरुको व्यवस्थापना भने Provincial Health Office, Local Health Unit को Coordination मा Notification गर्न जरुरी छ, जस्तै : Scrub Typhus, Cholera, Rabies, Dengue, आदि ।
- नेपाल फार्मसी परिषदबाट न्यूनतम Pharmacy Practice (GPP सम्बन्धमा मस्यौदा तयार गरिएको छ जसमा औषधि उपचार सम्बन्धमा समूचित पुर्जा लेखन (Rational Prescribing) औषधि वितरण, भण्डारण र विरामीसंग विमर्श (Patient Communication) बारे जानकारी दिइएको छ । यसबाट औषधिको समूचित प्रयोग (Rational Use of Medicine) र विरामीबाट अनुशरण Patient Compliance बारे सहयोग पुग्ने विश्वास गरिएकोछ ।
- यस पुस्तिकामा उल्लेख गरिएका सरकारी स्वास्थ्य सेवा अन्तर्गतका विभिन्न स्वास्थ्य कार्यक्रमहरु तथा राष्ट्रिय कार्यक्रमहरु अन्तर्गतका उपचार पद्धतिहरु सम्बन्धित महाशाखा तथा केन्द्रहरुबाट परिमार्जन तथा अद्यावधिक गरिएका छन् ।
- यदि विरामी व्यक्ति पाँच वर्ष उमेर भन्दाकमको भएमा बाल स्वास्थ्य महाशाखाको IMNCI कार्यक्रम, राष्ट्रिय पोषण कार्यक्रम र राष्ट्रिय खोप कार्यक्रमबाट थाहा पाउन सकिन्छ ।
- सामान्य Abbreviations तथा Symbol औषधि पुर्जा (Prescription) मा उल्लेख गरिने Abbreviations/Symbol बारे जानकारी दिइएका छन् ।

भाग-२: उपचार पद्धतिहरु (Treatment Protocol):

औषधि सेवा - (Pharmaceutical Care) को सम्बन्धमा महत्वपूर्ण जानकारीहरु निम्नानुसार दिइएका छन् ।

- उल्लेखित पद्धतिमा औषधिको बनावट (Dosages Form), मात्रा (dose), Frequency and Duration, Route of Administration, Dosages Form बाट थाहा पाउन सकिन्छ ।
- औषधिसंगको अन्तरक्रिया (Drug Interaction) औषधि संग हुन सक्ने सम्भावित अन्तक्रियाबारे उल्लेख गरिएका छन् जसबाट यस्ता समस्याबाट रोक्न सकिन्छ ।
- औषधिको नकारात्मक असर र प्रतिकूल असरहरु औषधिहरुबाट हुन सक्ने सम्भावित प्रतिक्रियाहरु (Side Effects) र औषधिको प्रतिकूल असरहरुबारे जानकारी दिइएका छन् । सम्भावित औषधिको नकारात्मक असरबारे सम्बन्धित निकायमा जानकारी पठाउन आवश्यक Format यसै पुस्तिकामा संलग्न गरिएकोछ । उक्त फारम यसैपुस्तिकाबाट Photocopy गरी आवश्यक जानकारीका साथ पठाउन सकिन्छ । उक्त ढाँचा औषधि व्यवस्था विभागको web site : www.dda.gov.np बाट पनि प्राप्त गर्न सकिन्छ । उक्त फारममा आवश्यक जानकारी भरी स्वास्थ्य कार्यालय मार्फत औषधि व्यवस्था विभागको सूचनाशाखाको National Pharmacovigilance Center मा पठाउन सकिनेछ ।

PART ONE

GENERAL INFORMATION

PEOPLE-CENTRED CARE AND RATIONAL PRESCRIBING

1. PEOPLE-CENTRED CARE

People-centred care is a care that is focused and organised around people, rather than diseases. Within a people-centred approach, disease prevention and management are seen as important, but are not sufficient to address the needs and expectations of people and communities. The central focus is on the person in the context of his or her family, community, and culture (see Table below). People-centred care is broader than a closely related concept, patient-centred care. Whereas patient-centred care is commonly understood as focusing on the individual seeking care – the patient – people-centred care encompasses these clinical encounters and also includes attention to the health of people in their communities and their crucial role in shaping health services.

Distinguishing features of conventional health care and people-centred care:

Conventional care	People-centred care
Focus is on illness and cure	Focus on health needs
Relationship limited to the moment of consultation	Enduring personal relationship
Episodic curative care	Comprehensive, continuous and person-centred care
Responsibility limited to effective and safe advice to the patient at the moment of consultation	Responsibility for the health of all in the community along the life cycle; responsibility for tackling determinants of ill-health
Users are consumers of the care they purchase	People are partners in managing their own health and that of their community

Core principles of people-centred care include the following:

- Dignity and respect: Patients', families', and communities' perspectives and choices are sought, heard, and respected. Their knowledge, values, beliefs and cultural backgrounds are incorporated into the planning and delivery of care.
- Focus on the whole person: People-centred care views people as more than their diseases. It sees them in the context of their daily lives, as part of a family and a community, and over the life course from childhood to old age. People's health and well-being are considered from a biopsychosocial perspective, and maximising quality of life is a paramount treatment objective.
- Partnership: Within a people-centred approach, power and responsibility are shared among patients, health workers and communities. People are enabled to participate, to their level of ability and preference, as partners in their own health and that of their community.
- Continuity of care is an important aspect of people-centred care and primary health care teams providing Basic Health Care Services (BHCS) are best positioned to coordinate and facilitate referral and coordination between different levels of care.

The ultimate goal of primary health care is better health for all. Organising health services around people's needs and expectations is key to achieving that goal, along with moving towards universal coverage.

2. PRINCIPLES OF APPROPRIATE PRESCRIBING

The following aspects should be considered before prescribing a drug:

- Appropriate prescribing depends on accurate diagnosis, knowledge about drugs available for treatment, proper prescribing of the correctly selected drugs and proper understanding and compliance of patients about how to use each prescribed drug.
- Unless it is necessary, avoid prescribing multiple drugs (polypharmacy).
- Never prescribe any drug just to please the patient. Try to resist any demand from the patient for certain products, e.g., injectable preparation, vitamin products.
- Antibacterials, e.g., Amoxicillin or Cotrimoxazole, are only effective for treating bacterial infections. Do not misuse or overuse them in conditions that are not caused by bacterial infections, like influenza, acute non-specific diarrhoea, etc.
- Essential medicines are those effective, safe and economical drugs that are selected to satisfy the needs of the majority of the population. The drugs recommended in these treatment protocols are only those that belong to the National List of Essential Medicines (NLEM). Prescriptions should always be confined to the essential medicines.
- Always prescribe by generic names, e.g., Paracetamol, and not by brand names, e.g., Cetamol.
- Every medication may bear a risk for adverse reactions. In every case, the likely benefit should be weighed against the potential risk.
- Some conditions cannot be treated in Health Posts (HPs) or community health units (CHU) or urban health centres (UHC). Patients who cannot be treated at the local health facility should be referred to a higher-level facility without delay.
- Prescribing for children is not the same as that for adults. Calculation of dose for children and neonates requires special care and monitoring. Children's doses may be calculated using age, weight, body surface area or a combination of these as prescribed in standard texts.
- Prescribing in elderly patients and the immunosuppressed also needs special care and monitoring. Elderly patients are different from younger adults as they may suffer from multiple disease or conditions, have reduced body mass and volume of drug distribution, reduced hepatic and renal function and manifestations of normal aging, etc.
- Patients should be counselled on: how to take drugs, the timing, duration and completion of prescribed dosage, what to do if side effects occur and when to return, and interaction with other drugs/food etc.

Therefore, to achieve a safe, effective and economical use of drugs, prescribing should be based on some basic principles, as follows:

- **Appropriate indication:** Prescribing of drugs should be based on a real medical need consistent with accurate diagnosis, and critical evidence indicating that drug therapy is the best alternative for treating the patient's health problem. Prescribing of drugs should not be made for other reasons, for instance, because of demands from the patient, or to please the patient.
- **Appropriate drug:** If a patient requires drug treatment, only those drugs that are most effective, safe, suitable, and economical should be prescribed. The recommended drugs for all common conditions here in Nepal are given in this book. Providers are advised to follow the treatment recommendations in this guide.
- **Appropriate for the patient:** The selected drug that is considered best to treat the problem can only be given to an individual patient if there is no contraindication. If a contraindication exists, a safer alternative should be chosen. For example, Cotrimoxazole cannot be given to patient with history of allergy to Sulfa drugs.

- Appropriate administration, dosages and duration: How the drug will be administered, in which formulation, what dosage, how often, and for how long, should be decided before prescribing a drug to an individual patient. For most drugs that are used to treat commonly occurring problems in HPs and community health units/urban health centres/units' information about dosages, administration, and duration of treatment is included in this guideline.
- Use of steroid and NSAIDs: NSAIDs and Steroids are frequently prescribed drugs. Use of these drugs needs proper consultation in long term.
- Appropriate information: Providing proper information regarding the disease and the medication is an integral part of the prescribing process. Patients should be well informed, to ensure the correct and safe use of drugs as well as the compliance of the patients.
- Appropriate follow-up: Every medication should be properly followed up and evaluated. Expected effects or unintended side effects should be properly communicated to patients, and should be evaluated during follow-up examinations. The patients should be informed properly when they should come back for follow-up. Reporting of adverse effects to the national reporting system is encouraged at all levels of the health care system.

3. RATIONAL USE OF ANTIBIOTICS

Increasing antimicrobial resistance today poses a significant threat to public health in Nepal. A safe and effective strategy for antibiotic use involves prescribing an antibiotic only when it is needed and selecting an appropriate and effective agent at the recommended dose, with the narrowest spectrum of antimicrobial activity, fewest adverse effects and lowest cost.

Good antibiotic prescription practices include:

1. Prescribing empiric antibiotics for suspected bacterial infections only if:
 - Symptoms are significant or severe,
 - There is a high risk of complications,
 - The infection is not resolving or is unlikely to resolve.
2. Using first-line antibiotics first.
3. Reserving broad spectrum antibiotics for specifically indicated conditions.
4. When starting antimicrobials, using full therapeutic doses, paying close attention to dose, frequency, and route of administration and duration of treatment.
5. Stopping antimicrobials if the cause of initial symptoms is found to be non-infectious.
6. Whenever possible using diagnostic tests such as culture and sensitivity to determine the appropriate antibiotic.
7. Reassessing the patient after 48 hours of antibiotic use if possible.

4. PRESCRIPTION AND ITS CONTENTS

- A prescription is a legal document. It is a direct means of communication between the doctor/other authorised prescriber and the pharmacist/other authorised dispenser regarding drug therapy of the patient.
- A prescription should be written clearly, legibly, correctly and completely. This will enable the dispenser to understand the contents fully, to dispense drugs correctly to the patients avoiding significant or even life-threatening errors.

- A prescription should contain information on three aspects: patient, therapy, and prescriber. Information about the patient includes the name, address, age, sex, and diagnosis. Information about therapy includes the name of the prescribed drug (always include generic name), dosage form and strength and quantity of drug. The patient should be told how to take the drugs, including dosage, route of administration, and frequency and duration of administration. Information identifying the prescriber includes the name, address and Nepal Medical Council or other professional council registration number.
- Whenever necessary, special instructions for taking the drugs need to be given to patients. This should be clearly written, e.g. 'to be taken before meals' or 'after meals.'
- The prescriber must sign a prescription. The date of the prescription should also be given. An example of the prescription is given below.
- Remember to check whether any family members have similar problems. If so they should also be treated.

Prescription sample:

Date: 2075-9-15

Patient name: Ram Bahadur Tamang, Age/Sex: 7 years old, Male,

Address: Wada No. 2, ABC Municipality, Dailekh

Diagnosis: Helminthiasis-Pinworm infestation**Rx:****Albendazole 400mg chewable tablet. One tablet at bedtime.****Repeat one tablet of Albendazole after two weeks.**

Hand washing before every meal and cleaning of underwear and bed clothes.

Follow-up: Any time if not well.

Signature
 Hari Raj,
 HPC no. 123456

Patient communication

Providing information to patients is an obligation for health care providers. Sufficient time should be spent with the patient to allow an effective two-way communication between health worker and patient (and/or carer) regarding the health problem s/he is suffering from, and the treatment that is required. The primary aim of patient communication is to educate patients towards good and desired behaviour for their health, and to ensure that they comply with the medication. The information that should be provided and shared with the patients and should therefore cover some essential components:

- The health problem from which the patient is suffering. What are the cause, prognosis, and necessary preventive and promotive measures in the future?
- The treatment that is required, both drug and non-drug treatment
- Information about drug treatment, including the name of the drugs, how to take the drugs and anticipated adverse effects that patients need to know. Reassurance should be given to patients, to help them comply with the treatment
- When the patients might need to come back for follow-up, if required.

5. INFECTION PREVENTION AND CONTROL AND WASTE MANAGEMENT AT BASIC HEALTH CARE CENTRES

5. A. INFECTION PREVENTION AND CONTROL (IPC)

Infection Prevention and Control (IPC) is a scientific approach and practical solution designed to prevent harm caused by infection to patients and health workers.

Standard Precautions include:

- Hand washing and antiseptics (hand hygiene)
- Use of personal protective equipment when handling blood, body fluids, excretions and secretions
- Appropriate handling of patient care equipment and soiled linen
- Prevention of needle stick/sharp injuries
- Environmental cleaning and spills management
- Waste management.

Hand Hygiene: This minimises contamination of microorganisms. Hand washing is recommended:

- Before and after examining any client (direct contact)
- After removing gloves because gloves may have holes in them
- After exposure to blood or any body fluids (secretions and excretions), even if gloves were worn.

Steps of hand washing:

- Use a plain or antiseptic soap
- Vigorously rub lathered hands together for 10–15s, taking care to clean backs of hands, between fingers, under nails, and wrists
- Rinse with clean running water from a tap or bucket.
- Dry hands with a clean towel or air-dry them.

Alcohol solution for surgical hand-scrub:

- Add 2ml glycerine to 100ml 60-90% alcohol solution.
- Use 3–5ml for each application and continue rubbing the solution over the hands for about 2–5 minutes, using a total of 6–10ml per scrub
- Close the tap (long body bibcock) with elbow.

Use of Personal Protective Equipment (PPE): This provides a barrier between microorganisms and the wearer. Equipment includes - gloves, eyewear, masks, aprons, gowns, boots/shoe covers/caps.

Wear Gloves:

- When performing a procedure in the clinic or operating room
- When handling soiled instruments, gloves and other items
- When disposing of contaminated waste items (cotton, gauze or dressings).

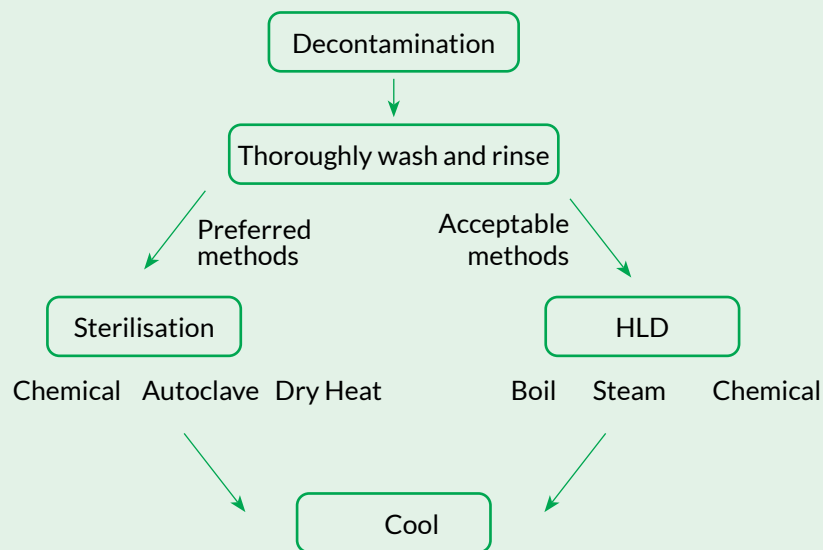
Wear protective goggles, face-masks and aprons: If splashes and spills of any body fluids are likely.

Patient care equipment:

Any equipment that is used for a patient, and touches only their intact skin, such as surgical instruments, should be sent for different methods of infection prevention (e.g. decontamination, cleaning, High-level Disinfection (HLD), sterilisation).

Effectiveness of methods for processing instruments:

Methods	Effectiveness (removal)	End point
Decontamination	Kills Hepatitis B Virus (HBV), Human Immunodeficiency Virus (HIV)	10 min soak in 0.5% chlorine solution or equivalent
Cleaning (water only)	Up to 50%	Until visibly clean
Cleaning (detergent with rinsing water)	Up to 80%	Until visibly clean
Sterilisation	100%	Autoclave, dry heat or chemicals (for recommended time)
HLD	95% (does not inactivate some endospores)	Boiling, steaming or chemical for 20 minutes

Processing soiled instruments and other items:

Decontamination: Process that makes inanimate objects safer to be handled by staff before cleaning (i.e., kills or inactivates HBV, HIV, Hepatitis C Virus (HCV) and reduces, but does not eliminate, the number of other contaminating microorganisms).

How to decontaminate instruments:

- Place instruments and reusable gloves in 0.5% chlorine solution after use, soak for 10 minutes and rinse immediately.

How to make 0.5% chlorine solution:

- To make 0.5% chlorine solution from 35% chlorine powder, mix 14.2g powder in 1 litre of water.

Cleaning: Refers to removal of organic material on soiled surfaces; generally done by clean water, mechanical action or detergents, later rinsing with clean water and drying. Ensure all visible soil is removed. This must be done for sterilisation and HLD to be effective.

How to clean instruments:

- Wash with detergent and water
- Scrub instruments until visibly clean
- Thoroughly rinse with clean water.

Sterilisation: Process that eliminates all microorganisms (bacteria, viruses, fungi and parasites) including bacterial endospores from inanimate objects by high-pressure steam (autoclave), dry heat (oven), chemical sterilising agent or radiation. This is used for instruments and items that are in direct contact with blood or tissue.

Practice of sterilisation:

- Autoclave (steam sterilisation): 121°C, 106kPa pressure or 15lb pressure/square inch (15psi), 15min for unwrapped items and 30min for wrapped items.
- Dry heat (oven): 170°C for 1 hour or 160°C for 2 hours
- Chemical sterilisation: Soak items in 2% glutaraldehyde for 8–10 hours or formaldehyde for 24 hours and then rinse with sterile water.

HLD: Process that destroys all microorganisms except endospores from inanimate objects. This is only acceptable alternative when sterilisation equipment is not available.

HLD practice:

- Boiling: Boil instruments and other items for 20min, start time when water begins to boil, air-dry before use
- Steaming: Steam instruments for 20min, start time when steam begins to come, air-dry and store in covered steamer pans
- Chemicals: Soak in 0.5% chlorine/2% glutaraldehyde/formaldehyde solution for 20min, rinse with boiled water and air-dry before use.

5. B. HEALTH CARE WASTE MANAGEMENT

Hospital waste is a potential reservoir of pathogenic microorganisms and requires appropriate, safe and reliable handling. Steps in the management of HP waste include waste minimisation, segregation/separation, collection, transportation, storage and final disposal.

Types

Non-risk health care waste: Also called general health care waste, this type of waste does not pose any biological, physical, chemical or radioactive hazard. It contains waste like paper, plastic, food waste, metal etc. It can be categorised as follows:

- Biodegradable waste (compostable): Leftover food, fruit, plants etc.
- Non-biodegradable waste (recyclable): Plastic, bottles, cans, metals, glass, paper, rubber etc.
- Other non-risk waste: Waste that cannot be composted or recycled (low-grade plastic).

Risk health care waste: This type of waste poses various environmental and health risks. Its classification includes:

- Sharp waste: Needles, blades, knives, scalpels, broken glass etc.
- Infectious waste: Waste contaminated with blood and body fluids, laboratory culture etc.
- Pathological waste: Body parts, human tissue, organs, blood product, placenta etc.
- Pharmaceutical waste: Expired and unused drugs
- Chemical waste: Laboratory reagents, disinfectant, film developer, batteries, and mercury thermometers.

Purpose of waste management:

- To protect people who handle waste items from accidental injury
- To prevent the spread of infection to workers who handle waste
- To prevent the spread of infection to the local community
- To protect the surrounding environment from pollution (soil, water, air)
- To safely dispose of hazardous materials.

Basic steps are considered essential for proper waste management:

- Waste minimisation
- Waste segregation
- Waste collection and storage
- Waste transportation
- Waste treatment, and
- Recycling, Reuse and disposal of the rest in sanitary landfill.

Proper segregation at the source itself: Waste segregation at Basic Health Care Centres (BHCCs) with different colour-coded buckets (separation) before disposal:

1. Green: Non-risk biodegradable waste, such as leftover food, fruit peel, leaves, flowers etc.
2. Blue:
 - Non risk recyclable waste (non-biodegradable), such as recyclable plastic bottles, cans, metal, glass, plastic, paper, rubber
 - Other non-risk waste that does not belong to biodegradable or recyclable categories
3. Red:
 - Infectious waste, such as syringes, bandages, gauze, cotton, content with body fluids etc.
 - Pathological waste, containing human body parts and placenta
 - Sharp waste such as all types of glass bottles and broken glass articles, and discarded medicines.
4. White: Waste sharps (needle, blades) including metals- puncture proof containers.
5. Yellow: Chemical waste
6. Black: Hazardous radioactive waste.

Methods of waste management:

- Non-risk biodegradable waste: Food, garden waste, fruit peel, plant residue can be composted to produce compost and also can produce biogas if the volume of waste is sufficient for anaerobic digestion
- Infectious waste: Bandages, cotton, dressing materials, syringes etc. should be autoclaved, with non-recyclable waste safely disposed of through sanitary landfill

- Pathological waste: Human tissue and placentas should be disposed of in placenta pits that are compliant to standards
- Non-biodegradable recyclable waste: Plastic, paper, rubber and metals should be reused or recycled
- Pharmaceutical waste: Waste is disposed of in secured landfill after encapsulation
- Sharp waste: Waste is at first disinfected with 0.5% chlorine solution and disposed of by encapsulation or septic vault.

Placenta pits are prepared in all HP Birthing Centres for disposal of placenta; they measure about 4m deep and 1.5m wide.

5. C. NEEDLE STICK INJURIES

- Needle stick injuries are wounds caused by needles that accidentally puncture the skin.
- These injuries are a hazard to health workers and can occur any time while using hypodermic syringes or related needle equipment. Body fluids which are proven to be more infective in causing infections are blood, semen and vaginal secretions. Similarly, CSF, synovial, pleural, peritoneal fluids are also considered to be potentially infectious.
- The major pathogens of concern in such occupational body fluid exposure via needle stick injuries and their risks of seroconversion due to sharps injury from a known positive source are:
 1. HIV: 0.3%
 2. Hepatitis B: 6-30 %
 3. Hepatitis C: 2%

General Measures:

1. Wash with soap and water for 10-15 seconds.

Alcohol can also be used in case of small punctures since it is virucidal to HIV, HBV and HCV.

2. If mucosa is involved, irrigate with clean running water or normal saline.

REFERRAL

- Immediate referral for Post Exposure Prophylaxis (PEP) in cases of high-risk patient source.
- Refer patient for testing if the status is not known.

PART TWO

COMMON EMERGENCIES

CHAPTER II

COMMON EMERGENCY CONDITIONS

1. SURGICAL SKILLS – DRESSING, SUTURING, INCISION AND DRAINAGE

Traumatic injuries can range from simple isolated wounds to complex injuries as in cases of polytrauma involving multiple organ systems. Below is a description of simple dressing and suturing procedures at BHSCs.

1. A. DRESSING AND SUTURING

DRESSING is a set of procedures for treating a wound, using an aseptic technique. The objective of dressing is to prevent contamination from the external environment, to favor tissue regeneration, to destroy pathogenic organisms and to stop hemorrhage.

Equipment needed for simple dressing:

- 1 dressing tray
- 1 dissecting forceps with no teeth
- 1 Kocher forceps with teeth
- 1 pair of scissors
- 1 drum of sterile gauze pads
- 1 kidney dish
- Cotton wool to disinfect the tray
- Adhesive tape
- Antiseptic: povidone iodine, normal saline, sterile water.

TECHNIQUE of sterile dressing

Use Standard Precautions (see Chapter I, Section 5)

- Wash hands thoroughly with soap and water, then dry with a clean towel and wear sterile gloves
- Open the sterile dressing tray
- Clean the wound and surrounding skin with cotton balls soaked in povidone iodine or Normal Saline (NS) in a circular, inside-to-outside motion or a straight up-to-down motion. Use each cotton ball for one wipe each: DO NOT rub back and forth. Dispose of soiled cotton balls
- Gently dry the wound using gauze
- Place sterile dressing pad over the wound
 - o The pad should extend to cover the skin at least a few centimetres around the wound
 - o The part of the dressing that will be in contact with the wound should never be touched
 - o If blood/fluid seeps through the first bandage, do not remove it – instead, place another dressing over the top
 - o If blood seeps through the second dressing, take off both dressings and apply a fresh dressing and put firm pressure on the wound to help stop the bleeding
- Cover wound with sterile gauze and a sterile compressor such as a rolling bandage
- Secure with adhesive tape or gauze bandage
- Dispose of all soiled items in the proper container; remove gloves and wash hands
- Change dressing every two to three days, with daily dressing if the wound is infected with pus formation.

SUTURING

Sutures are appropriate when the depth of the wound would lead to excess bleeding or scarring if the wound edges were not properly opposed.

Equipment needed for suturing:

- 1 dressing tray
- 1 dissecting forceps with no teeth
- 1 needle holder for suture material
- Suture material: catgut (for mucus membrane), nylon/silk (for skin)
- 1 Kocher forceps with teeth
- 2 pairs of scissors (one tissue cutting and one suture cutting)
- 1 drum of sterile gauze pads
- 1 kidney dish
- Cotton wool to disinfect the tray
- Adhesive tape
- Solution of antiseptics: povidone iodine, normal saline, sterile water
- Local anaesthesia: 1% or 2 % lignocaine.

TECHNIQUE:

- Wash hands properly, put on sterile gloves, and make equipment ready for suturing
- Initial cleaning using NS or sterile water
- Disinfect the wound with povidone iodine
- Infiltrate local anaesthetic (1% lignocaine 5–10ml) around the edges of wound and wait for at least for two minutes
- In adults, the maximum dose of Lignocaine is 20ml of 1% solution (child 0.4ml/kg BW of 1% solution) or 10ml of 2% solution (child 0.2ml/kg BW for 2% solution); this may not be sufficient in patients with very large or multiple wounds; refer such patients
- Proceed carefully from the superficial to deepest parts of the wound to explore the extent of wound
- Look for any other injury to underlying structures: fracture, nerve injury, tendon injury, arterial injury
- Primary suturing: immediate suturing performed only after cleaning, exploration and satisfactory excision for simple wounds, no more than 6–24 hours old with no contused tissue
- Delayed suturing is performed for contaminated wounds, dog bites and bullet injuries. If after 72 hours there are no signs of local infection, the wound can be sutured
- Suturing: Plan where you are going to put your sutures. It is often better to start with the middle of the wound, with a “placer suture”, even if you cannot approximate the edges completely, so that you can get the right parts together
- While suturing, ensure that the needle passes through the Subcutaneous (SC) tissue, not just the superficial skin. The sutures should not normally be closer together than 1cm apart, and if it is difficult to get the edges together, use “mattress” sutures
- Tying sutures: Loop the suture around the needle holder in one direction and remember the direction of the loop; grasp the loose end with the needle holder and pull it through the loop to make the first knot, then lower the knot so that it closes the wound. The second loop should be in the opposite direction. At least three knots are required to make a suture, alternating from one direction to other.
- Close deep wounds in layers, using absorbable sutures for the deep layers
- Place a drain in deep oozing wounds to prevent haematoma formation
- Ask patients with clean wounds to come for dressing in two three days’ time, and those with infected wounds to attend daily
- Remove suture in five to ten days (five to seven days for face and hands, seven to ten days for legs and trunk).

MANAGEMENT**Drug treatment****Preventing Tetanus**

- Inj.Tetanus Toxoid (TT) 0.5ml IM administration over the deltoid muscle in any kind of wound is of utmost importance
- Refer for Tetanus Immunoglobulin to higher centre if the wound is contaminated and deep.

Antibiotics: As a rule, systemic antibiotics should not be prescribed routinely; even topical antibiotics are optional. However, in some situations, systemic antibiotics are needed:

- Deep and soiled wounds, especially bite wounds
- To prevent abscess formation in infected wounds
- Infected burns.

Cap cloxacillin 500mg orally (PO) four times a day (QDS) for five days, or amoxicillin 500mg PO three times a day (TDS) for five days, and Tab metronidazole 400mg PO TDS for five days.

REFERRAL

- Wound with bleeding vessels (apply pressure dressing before referral)
- Tendon injury, nerve injury
- Deep lacerated wounds needing tetanus immunoglobulin
- Bone fractures (wash wound with NS, apply sterile dressing and stabilise fracture by application of a splint; give antibiotics before referral) and polytrauma.

1. B. ABSCESS

A skin abscess is a collection of pus within the dermis or subcutaneous space. Predisposing factors for abscess formation are trauma, skin inflammation, oedema due to impaired lymphatic drainage and venous insufficiency, obesity, immune-suppression, and haematogenous spread of infection. The most commonly identified organism in abscess is Staphylococcus aureus.

DIAGNOSIS

Painful, fluctuant, erythematous nodule with or without surrounding cellulitis.

INCISION AND DRAINAGE (I&D) FOR ABSCESS**Equipment needed for I&D:**

- Sterile scalpel blade and handle
- Surgical gloves
- Plain curved forceps without teeth (Kelly forceps), scissors
- Antiseptic solution, e.g., povidone iodine
- 5 or 10ml syringe
- Packing material: plain gauze
- Mosquito forceps

Anaesthesia:

- Most of the time, local anaesthesia for abscess drainage is not effective
- For superficial abscesses, the skin can be briefly infiltrated with Lignocaine 1%, 5–10ml.

Procedure:

- Clean the abscess area with povidone iodine, wait for 30 seconds, wipe off with sterile gauze
- Give local anaesthesia at the skin over and around the abscess where the incision will be made. Wait for three minutes. For bigger abscess, refer to higher centre for drainage.
- If you are not sure about whether it is an abscess, first take a syringe with an 18gauge needle and insert it into the area you suspect. Attempt to aspirate the pus. If blood and pus are removed, then proceed with the I&D.
- Hold the skin and use the scalpel blade (usually #11) to make a quick stabbing cut into the abscess. The direction of the cut should be in the same direction of the skin folds if possible. Make sure the incision is at least 1cm or larger (based on the size of the abscess)
- After incision, probe the abscess cavity with a haemostat forceps to break up loculations and ensure proper drainage. Use your fingers to express any pus and blood that comes out. Use a gauze pad to help soak the pus and blood
- Make sure that the abscess has been drained and that there are no other pockets of infection that have not been incised, to prevent recurrence
- Irrigate the abscess cavity copiously with isotonic saline solution until visible pus is removed
- Pack the abscess cavity with sterile gauze, a tail of 1cm of packing can serve as a wick for drainage and facilitate subsequent removal of the packing material
- Re-evaluate the wound after 24–48 hours. Generally, the pack can be removed after this time and the wound cleaned and dressed every one to two days until healed (may take one to three weeks, depending on size of abscess).

MANAGEMENT**Drug treatment:**

Antibiotics: for single abscess >2cm, multiple lesions, systemic signs of toxicity (fever >100.5°F/38°C, tachycardia, hypotension), extensive surrounding cellulitis, associated with other comorbidity etc.

- Inadequate clinical response to I&D alone:
 - o Cloxacillin – 500mg QDS for five days OR
 - o Doxycycline 100mg – twice a day (BD) on Day one, followed by once a day (OD) for four days

2. SHOCK

Shock is the failure of the circulatory system to carry blood and oxygen to the heart, brain and other vital organs. It is life-threatening and requires immediate and intensive treatment by fluid replacement.

DIAGNOSTIC FEATURES**Important symptoms:**

- History of blood loss, diarrhoea, serious burn or other injury, high fever, snake bite, allergy, poisoning or other serious disease
- Patient may feel very anxious and cold
- Patient may be confused or drowsy and hard to wake
- There may be shortness of breath/fast breathing.

Important signs:

- Pulse fast (tachycardia) and weak
- Raised Respiratory Rate (RR, >25/minute in an adult)
- Skin pale or grey and clammy (sweaty, cold to touch)
- Blood Pressure (BP) <90 Systolic BP (SBP) or <60 Diastolic BP (DBP)
- Anxiousness, confusion or loss of consciousness
- Urine output also decreases to less than 30ml per hour
- Capillary Refill Time (CRT) >3s.

Differential diagnosis:

Reduced consciousness for other reasons, chest injury, heart attack, heart failure for another reason.

Monitoring:

- Assess for any ongoing heavy bleeding
- Check pulse, BP and RR
- Check urine output.

MANAGEMENT AND DRUG TREATMENT

Stabilise and refer

- Take immediate action to stop any significant ongoing bleeding
- Stay with the patient, send for more help/people, to take patient to hospital
- Monitor vital signs
- If unconscious, turn patient on his/her side (the recovery position)
- Elevate the legs
- Start treatment of the cause of shock
- In case of anaphylactic shock – give adrenaline 1mg/ml preparation- 0.01mg/kg(Child) and 0.5ml undiluted solution (Adult) into mid outer thigh, to maximum 0.5mg; may be repeated every 5–15 min with total of 3 doses only per patient’s response.
- Insert two wide-bore cannulas for Intravenous (IV) access and then start IV infusion (NS or RL), 20ml per kg Body Weight (BW) (adult: 1-2 L over 1 hour).
- Check pulse and BP after that, and repeat same amount over 30–60 minutes up to three times if not recovered
- Do not give fluids or medicines by mouth unless the patient is conscious
- Keep monitoring consciousness and vital signs and urine output
- Prepare for transport to hospital.

CLASSIFICATION OF SHOCK

Type of shock	Diagnostic features	Management
Hypovolemic shock		
(lack of blood/fluid inside the blood vessels)	<p>Causes: trauma, bleeding (external and internal), diarrhoea, vomiting, burn injury (including electrical)</p> <p>Presentation: hypotension, tachycardia, oliguria, tachypnoea, cool (cold), clammy peripheral skin, abnormal mental status.</p>	<ul style="list-style-type: none"> - Maintain airway, breathing and circulation. Give oxygen, IV fluids (RL/NS) 1-2L IV rapidly over 1 hour, 20ml/kg BW for children. Repeat if no response. If features of shock still present, then REFER.
Septic shock		
(circulatory failure due to severe infection affecting organ systems)	<p>Causes: infection spreading through body (bacteria, virus, fungus)</p> <p>Presentation: fever, hypotension, tachycardia, BP does not come up with first initial IV bolus fluid (1-2L NS/RL)</p>	<ul style="list-style-type: none"> - IV fluid 1-2L RL/NS bolus, 20ml/kg BW for children - Repeat x 2 every 30 minutes if no response - Inj ceftriaxone 1g IV stat - Foley catheterisation and REFER
Anaphylactic shock		
(massive release of histamine and similar substances in the body – extreme allergic reaction)	<p>Causes: drugs (penicillin, cephalosporin, lignocaine), certain foods, insect bites (wasp/scorpion/snake etc.)</p> <p>Presentation: hypotension, severe dyspnoea, history of exposure to allergen, urticarial skin rashes, facial puffiness</p>	<ul style="list-style-type: none"> - Maintain airway (position), breathing (oxygen), open IV lines (RL/NS Isotonic IV fluid as above) - Inj adrenaline 1:1000 solution (dosage mentioned above) <p>If features of shock still present REFER</p>
Cardiogenic shock		
(failure of the heart to pump blood)	<p>Causes: MI, cardiomyopathy, valvular heart disease, myocarditis</p> <p>Presentation: Hypotension, tachycardia, feeble pulse, chest pain, cold periphery, tachypnoea, raised JVP, leg oedema.</p>	<ul style="list-style-type: none"> - Maintain airway (position) - Breathing (oxygen) - IV access: Start inj NS 250ml IV stat and REFER.
Neurogenic shock		
(Mostly the result of a spinal cord injury usually secondary to trauma and cervical spine injury)	<p>Causes: spinal injury, head injury</p> <p>Presentation: Hypotension, warm flushed skin, bradycardia</p>	<ul style="list-style-type: none"> - Maintain airway (position) - Breathing (oxygen) - Keep in left lateral position, and give IV fluids (RL/NS) 1-2 L IV rapidly. If no improvement, then REFER

ADVICE

Even if the patient seems to recover with IV fluids, in the majority of cases, referral to hospital is safest, as there is a risk of late complications, and the patient will very likely need further treatment (e.g., blood transfusion).

REFERRAL

- All cases, except in dehydration, where the cause is resolved, and if the patient recovers rapidly and fully.

3. UNCONSCIOUS PATIENT

Unconscious patients have impaired responsiveness to external stimulation; they require prompt intervention for preservation of life and brain function.

CAUSES

Head injury, substance overdose, renal and hepatic failure, hypoglycaemia, hypoxia, diabetic coma, stroke, brain infections, epilepsy, psychogenic illness, etc.

If a patient presents unconscious to a BHSC, follow the below steps:

1. **A: Is the Airway clear?** Turn the patient to the semi-prone position, clear the mouth from food and other objects, and use a Guedel's airway if needed. If the person has a Glasgow Coma Scale (GCS: table below) score of <8, REFER urgently. Protect C-spine with cervical collar.
2. **B: Is the person breathing all right?** If they are breathing too fast, too slow or the breathing is obviously difficult, start oxygen. You may need to give ventilation through an Ambu bag.
3. **C: Is the Circulation all right?** Treat any shock or dehydration and stop any bleeding wounds.
4. **Check the blood glucose:** The person may be hypoglycaemic: Treat hypoglycaemia with Inj dextrose 50% 50ml, or 10% Dextrose 500 IV stat (child: 2–5ml/kg BW of 10% solution).
5. **Check for head injuries, spinal injuries and fractures** especially if the person has had an injury, such as after a road accident or fall or fight. Protect C-spine.
6. **Now look for the cause of unconsciousness:**
 - a. **The person may have had a head injury:** Record the GCS.
 - b. **Does the person have malaria or meningitis?** Is there fever or neck stiffness? If meningitis is likely, start ceftriaxone 2g IV and REFER.
Start malaria treatment if you are in a place where malaria is common and an unconscious patient comes to you with fever and REFER.
 - c. **Has the person had a fit?** Someone might have seen them fit or they might have bitten their tongue or passed urine during a fit. If convulsions are ongoing, give diazepam 5–10mg IV or rectally (child 1mg/year of age); dose can be repeated after 15 minutes if still fitting.
 - d. **Could they have taken a poison?** Evaluate, decide whether to give stomach wash. Or they may need activated charcoal 1g/kg BW through a Nasogastric (NG) tube.
 - e. **Could they have had a stroke?** Those who are unconscious after a stroke, especially if they have unequal pupils, often do not do well even with the best treatment.

EVALUATION

- Vitals: temperature, pulse, BP, RR.
- Breathing pattern: shallow, irregular, deep rapid hyperventilation, periodic respiration?
- Breath: characteristic odour of alcohol, organophosphorus, uraemia, hepatic coma?
- Level of consciousness: Use “**AVPU**” in emergency setting (Classify as “**Alert**”, “**Responds to Verbal command**”, “**Responds to Pain**”, “**Unresponsive**”) or GCS (Table below)

- Skin features: look for injection sites, snake bite marks, skin colour (cyanosis, jaundice, rashes)
- Hydration: dehydration due to infections, uraemia, diabetic coma
- Pupil: assess for size, reaction to light to both sides (unequal or irregular pupils suggest serious brain injury)
- Urine output (use Foley catheter if possible).

GLASGOW COMA SCALE

Eye opening	Verbal response	Motor response
Spontaneous opening (4)	Oriented (5)	Obeys commands (6)
To verbal command (3)	Confused conversation (4)	Localises pain (5)
To pain (2)	Inappropriate words (3)	Withdraws from pain (4)
No response (1)	Incomprehensible sounds (2)	Abnormal flexion (decorticate) (3)
	No response (1)	Abnormal extension (decerebrate) (2)
		No response (1)

Total score maximum (15), minimum (3)

MANAGEMENT

Initial treatment

Basic Life Support (BLS)/Cardiopulmonary Resuscitation (CPR): See Annexes.

REFERRAL

Excess bleeding, substance overdose, head injury, low GCS, patients with high-grade fever, diabetic ketoacidosis/coma, epilepsy, pregnancy with pre-eclampsia (Refer to Chapter VII: Safe Motherhood), vomiting, high BP.

4. CONVULSIONS

“Seizure” is an episode of a temporary malfunctioning of the brain causing a transient loss of consciousness and usually (but not always) involuntary movement. Seizures can be “partial” (only causing brief loss of awareness of the environment or abnormal movement in part of the body) or “generalised” – affecting the whole body.

Generalized Tonic-Clonic Convulsion: This is more commonly encountered; typically, a person suddenly falls down, their hands and legs shake violently, they froth in the mouth, their eyes look up, they may bite their tongue and they may pass urine during the attack.

CAUSES

- Epilepsy: a chronic condition characterised by recurrent seizures, caused by abnormal electrical activity in the brain, with no other features of illness between seizures.
- Febrile seizure: fits can occur with any fever in some children between one to five years of age
- Hypoglycaemia, severe electrolyte disturbance (hyponatraemia)
- Meningitis, encephalitis, malaria
- Eclampsia
- Alcohol withdrawal
- Head injury, tumours or abscesses in the brain, cysticercosis
- Other rare causes, such as hypoxaemia.

MANAGEMENT**Stabilise and refer**

- Check airway, breathing and circulation if the patient is unconscious
- Protect the person from injury by moving them away from fires and other dangers
- Keep them in lateral position, protect airway
- Do not use restraint/try to stop tongue bite by placing mouth gag
- Give diazepam if fits keep coming back every few minutes or do not stop within five minutes.

Drug treatment

What to do if fits keep coming or last longer than five minutes: This is status epilepticus.

- Give IV diazepam 5–10mg slowly for adults or 0.2-0.3mg/kg/dose in children.
- If IV injection is not possible, give rectal diazepam (same dose as IV, given rectally through syringe without needle). Do not give IM diazepam
- Refer after stabilization.

Febrile convulsions – children aged one to five years

- Paracetamol (15–20mg/kg BW dose) TDS; rectal suppositories can also be used during cases of emergency when IV access cannot be secured instantly.
- Apply tepid water.
- Inj Diazepam 0.2-0.3mg/kg/dose if persisting seizure.

ADVICE

- Febrile fits can come back if the child gets fever again: be prepared
- Keep the baby on its side to prevent the tongue blocking the airway and to prevent aspiration
- Teach the mother how to cool the baby by wiping the whole body with a wet cloth; the water must not be too cold
- Always keep paracetamol ready and give it TDS for two days at the start of any fever
- If fits keep returning or the fever is high, take the child to the hospital
- When the child is over five years of age, the febrile fits will usually stop. The child's brain will not be damaged.

FOLLOW-UP and ADVICE for EPILEPSY/RECURRENT SEIZURES

See Chapter on Epilepsy in Chapter X on Non-communicable Diseases (NCDs)

REFERRAL

- Children under one year: refer all children less than one year old that get fits because they may have meningitis
- Children between one and five years old that get fits with fever: most of these children have febrile fits, but you must be sure first that they do not have meningitis
- All older children or adults with new onset fits or increasing frequency of fits in known epilepsy
- Pregnant women with convulsions.

5. PRIMARY TRAUMA CARE (PTC)

Morbidity and mortality associated with trauma can be reduced by early and effective medical intervention.

The management of trauma resulting from falls, mechanical injury, road traffic accidents or any natural disaster requires clear recognition of management priorities with a primary survey (ABCDE) approach.

5. A. PRIMARY SURVEY

PRIMARY SURVEY	PRIMARY INTERVENTION
A. Airway and Cervical Spine	
Patient is able to talk comfortably	No intervention
Obstructed airway or gasping patient	Establish an airway: clear mouth, chin lift, jaw thrust
Cervical tenderness or deformity	Secure the cervical spine with a hard cervical collar. Refer to tertiary centre, with minimum movement of the cervical spine, on a spinal board/wooden slab
B. Breathing	
Increased respiratory effort	Oxygen and ventilate with bag and mask
Absent breath sounds on one side	Needle decompression with 14–16g needle in second intercostal space. Refer to higher centre for placing chest tube if needed
C. Circulation	
Low BP, weak femoral pulse, absent radial pulse	Start IV lines with two large-bore cannula
External bleeding	Apply compression bandage to control bleeding
D. Disability	
Obvious fractures or wounds	Splint in a stable position, compression dressings
Establish level of consciousness	Chart AVPU and time
Asymmetric or unreactive pupils	Chart pupil examination and time
Neurological deficits	Note specific defect and time
E. Exposure	
	Undress, log roll and per rectal examination. Place urinary catheter (contraindicated if bleeding from urethra)

SECONDARY SURVEY: Head to toe examination

Re-examine head, neck, chest, abdomen, pelvis and extremities and perform neurological exam with GCS. Document all injuries in order of importance to life and limb.

ADVICE

Regarding severity of problem and need of immediate referral:

- May need surgery
- May need blood: Blood donors

REFERRAL

- For investigations/imaging
- Unconscious or altered consciousness
- Excessive bleeding
- Suspected organ injury like chest, pelvis, abdominal injury
- Fracture or dislocation.

6. MANAGEMENT OF FRACTURE AND DISLOCATION IN TRAUMA PATIENTS

A fracture is a break in the normal continuity of bone.

A joint is dislocated when its articular surfaces are wholly displaced, one from the other, so that all apposition between them is lost.

DIAGNOSTIC FEATURES

Diagnostic features of fracture/ dislocation:	Deformity in common dislocations: joint dislocation deformity
<ul style="list-style-type: none"> • Pain • Tenderness • Swelling/bruising • Deformity • Pain during movement 	<ul style="list-style-type: none"> • Shoulder (anterior): abduction • Elbow (posterior): flexion • Hip (pposterior): flexion, adduction, internal rotation • Hip (anterior): aabduction, external rotation • Knee: flexion, external rotation

MANAGEMENT

- Immobilise the fractured/dislocated parts with splints
- Manage pain by ibuprofen 400mg PO or Inj diclofenac 75mg IM.
- Inj TT vaccine 0.5ml IM plus ceftriaxone 1g IV stat and Inj metronidazole 500mg IV stat in case of open fracture.
- Thorough washing of contaminated wound in open fracture with NS/sterile water, cover with sterile dressing (moisten with sterile NS) and then immobilise using splint.

REFERRAL

- Every suspected fracture/dislocation should be referred (the only exception are fractures of the fingers and toes with no deformity or suspected fracture of a rib with no breathing problems)
- In case of suspected spinal injury,
 - o Cervical spine should be stabilised with hard cervical collar
 - o Refer with spinal board/stabilise with hard flank
- Associated vascular injuries
- Refer immediately if there are signs of Compartment Syndrome (5Ps- pain, pallor, paraesthesia, pulselessness, paralysis)

7. BURNS AND SCALDS

Thermal burns are common in every health facility. The severity of the burns, the presence of inhalation injury, the patient's comorbid condition and acute organ failure are the factors that influence the prognosis.

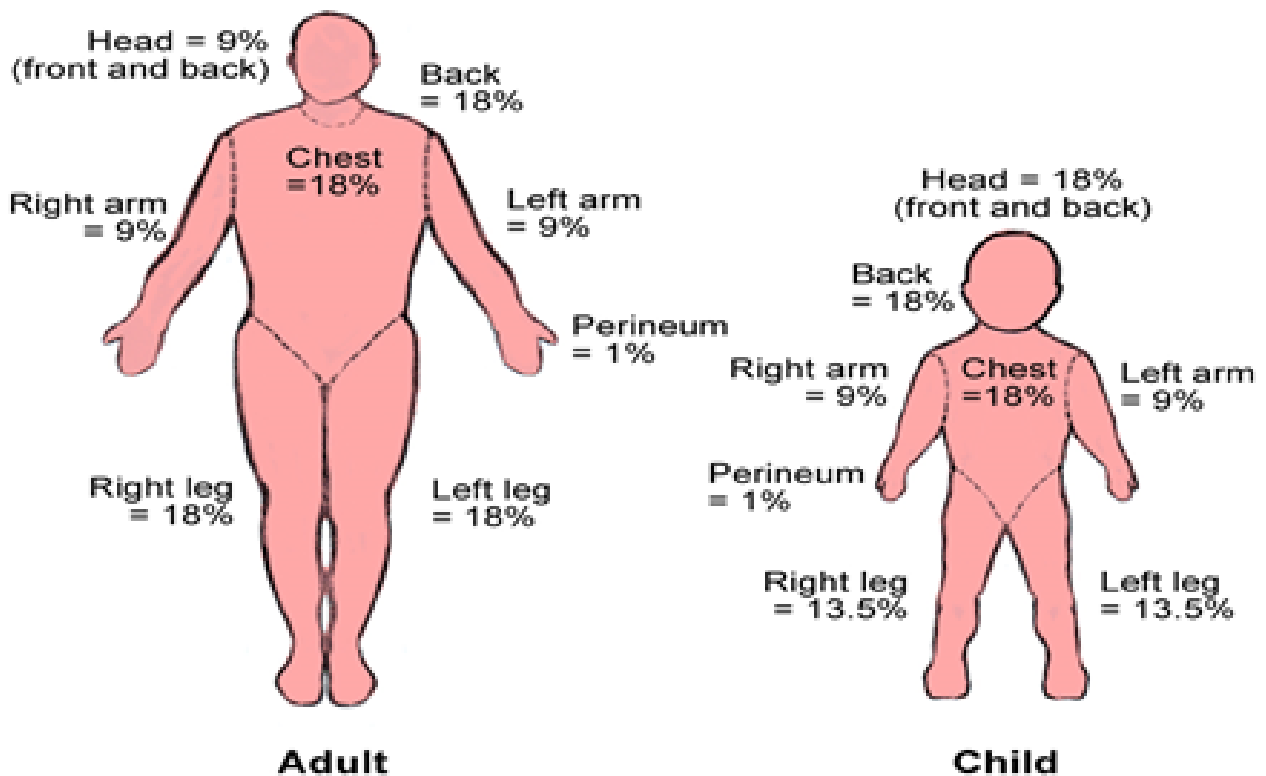
Clinical Features:

Evaluation of Depth of Burns: (classified by degree of burns):

Clinical Features	Superficial burn (1 st degree burn)	Partial thickness burn (2 nd degree burn)		Full thickness burn (3 rd degree burn)	4 th degree burn
		Superficial	Deep		
Anatomy appearance	-Epidermis -No blister	-Epidermis -Superficial dermis - Blister	-Epidermis -Deep dermis	-Epidermis & dermis charred, pale waxy,leathery	Epidermis bone, fat, muscle
Sensation	Painful	Very painful	Very painful	No pain	No pain
Healing	7-10 days	10-21 days	2-6 weeks	Months required graft	Months required multiple surgeries

Evaluation of external of burns (burn Size):

Rule of Nine:



MANAGEMENT

1. Work out if the patient needs extra fluids. In general, adults with more than 20% burns and children with more than 10% burns need extra fluids.
2. How much fluid?
 Adult patients with deep-partial and full-thickness burns involving more than 20 percent of the total body surface area (TBSA) should receive initial fluid resuscitation of 2 ml of lactated ringers/kg/%TBSA.
 Paediatric burn patients: fluid resuscitation is calculated based on 3 ml/kg/%TBSA
 Electric Burns: 4 ml/kg/%TBSA
 Half of the fluid is given over the course of eight hours and the remaining half is provided over a span of 16 hours. The rate of fluid administration should be titrated to effect using a target urine output of 0.5 ml/kg/hr in adults or 1 ml/kg/hr in children who are hemodynamically normal. Boluses are reserved for unstable patients.
3. What fluids? Use RL or NS. However, ORS is also very effective and will reduce costs if the person can drink (who has no burns inside the mouth). Use a NG tube if necessary
4. Give pain relief: paracetamol 1g TDS, avoid NSAIDs.
5. Strict I/O charting: target urine output of 30ml/hour or more.

Procedure in BHCS Facility

- Wash burn area with soap and water for 20 minutes (presenting within 24 hours of burn). Use plenty of cold water to cool the wound if the person has come to the health facility within 1 hour after a burn
- Do not burst blisters on the first day or if referral is needed. Burst blisters and remove the dead skin over blisters with a sterile blade after the second day.
- Give Inj TT 0.5ml IM stat
- Apply Silver Sulphadiazine (SSD) cream on the burnt area.
- Clean healing wounds should not be dressed daily. The wound should be dressed every four or five days with non-stick Vaseline gauze. If the dressing gets wet, it should be changed immediately.
- All slough or dead tissue must be removed if possible.
- Give antibiotics if there are signs of wound infection: cloxacillin or amoxicillin.

REFERRAL

- Children with more than 10% of body surface area burnt
- Adults with more than 20% of body surface area burnt
- During referral: advise extra fluids, may need IV fluids also. Make them drink plenty of ORS on the way to the hospital.
- Those who have burns of the airway
- Full-thickness burns if the wound is over a joint or it is large.

8. DROWNING

Drowning is defined as a process resulting in primary respiratory impairment from submersion or immersion in a liquid medium – usually water.

CAUSES

Accidental, homicidal, suicidal.

DIAGNOSTIC FEATURES

- Victim has been removed from water/other liquid
- Swallowing air/water resulting in vomiting
- Impaired or absent respiration
- Bradycardia/absent pulse.

MANAGEMENT

The key principles of management are: maintaining adequate oxygenation, preventing aspiration and stabilising body temperature.

Assess the patient using an ABCDE approach:

- Airway: Clear mouth and pharynx of any debris. Place patient in prone or lateral position (face down) to try to clear water from lungs and stomach
- Breathing: If patient is not breathing, place them on their back and start CPR: immediate chest compression with rescue breathing.
- Give oxygen, if available.
- Circulation: Start IV line and give IV fluids for hypovolaemia
- Disability: Assess responsiveness using AVPU scale
- Exposure: Remove wet clothing. Cover with warm blankets. Perform head-to-toe examination to look for evidence of injuries.

REFERRAL

- To a tertiary referral centre with intensive care facilities.

9. SNAKE BITE

The World Health Organization (WHO) includes snake bite as a neglected tropical disease. Snake bite problems are mostly found in the Terai and inner Terai regions of Nepal. Common venomous snakes found are Cobra, Krait and Viper.

Differentiating cobra, krait, and viper bites through presenting features:

Clinical features	Cobra	Krait	Viper
Family	Elapidae	Elapidae	Viperidae
Local name	Goman, Nag	Karet	Baghesarpa, haryousarpa
Local effects	Swelling, local pain, blister, bulla	No signs	
painless	Local pain, swelling, bleeding at bite site.		
General features	Nausea, vomiting, abdomen pain, anxiety	Nausea, vomiting, abdomen pain, anxiety	Nausea, vomiting, abdomen pain, anxiety
Systemic manifestations	<u>1. Neurotoxicity</u> Ptosis, Ophthalmoplegia Pupillary dilatation, Difficult to open mouth, swallow, Broken neck sign (cannot hold neck when sitting up from supine position) 2. Respiratory Failure	<u>1. Neurotoxicity</u> (less common than in cobra) 2. Respiratory Failure 3. Renal failure	<u>1. Hematotoxicity</u> Venepuncture site bleeding, Gum bleed Epistaxis, Haemoptysis Hematemesis /melena Petechiae, purpura Internal organ bleeding

MANAGEMENT

First aid treatment

- Reassurance
- Immediately move away from the area where the bite occurred
- Remove anything tight from around the bitten part of the body to avoid harm if swelling occurs.
- Immobilise the bitten limb with a splint or sling; reduce any movement of patient
- Give Inj TT or Tetanus Diphtheria (TD) booster vaccine
- Paracetamol may be given for local pain (which can be severe)
- Vomiting may occur, so place the person on their left side in the recovery position
- Closely monitor airway and breathing and be ready to resuscitate if necessary.

Indications for ASV (Anti-snake Venom):

ASV is recommended if and when a patient with proven or suspected snake bite develops one or more of the following:

- Evidence of neurotoxicity: Ptosis, ophthalmoplegia, respiratory difficulty.
- Evidence of hematotoxicity/Coagulopathy: Systemic bleeding, rapid extension of local swelling more than half of the limb, 20 WBCT positive.
- Evidence of cardiovascular collapse: Shock
- Evidence of acute kidney injury: Low urine output, deranged RFT

ADVICE

- Do not apply tourniquet
- Do not cut into a snake bite with a razor/knife
- Do not try to suction the venom by mouth
- Do not apply any home remedies
- Bring victim as early as possible without any delay to the treatment centre

ASV is not contraindicated in pregnancy.

REFERRAL

Refer for ASV if indicated. If there are no signs of local or systemic envenomation, i.e., there is no indication of poisoning, do not use ASV.

10. POISONING

Poisoning is a condition in which a person becomes chemically harmed by a toxic substance. Diagnosis is primarily clinical by taking the history. Treatment is supportive for most poisoning; specific antidotes are available for few. The management of commonly used poisons in Nepal is given below- Organophosphorus, Rat poison, Dhatura, Mushroom, Kerosene/Petroleum.

GENERAL MANAGEMENT FOR ACUTE POISONING

- Always start with assessing ABCDE – Airway, Breathing, Circulation, Detect and correct (hypoglycaemia, seizures, hypo-hyperthermia), Emergency antidote administration
- Find out what poison was taken, when and how much
- ONLY if the patient presents within 1 hour of taking the poison: Insert an NG tube and perform a gastric lavage, using the largest tube with NS or tap water if it is not corrosive poisoning. Patient is placed in lateral position to prevent aspiration
- Poisons are absorbed from the skin and eyes. Therefore, before gastric lavage, remove all contaminated clothes and wash the skin and eyes for 20 minutes, to reduce absorption of the poison
- Give activated charcoal: 1g/kg BW, maximum 50g within 1 hour of intake. Mix activated charcoal in 200ml of water and put it into the stomach through the stomach wash tube or an NG tube if a stomach wash has not been performed. Flush the charcoal down the tube with a little plain water. If the patient has vomited the activated charcoal within 30 minutes, repeat the dose
- If patient is unconscious/semiconscious, check blood sugar; if that is not possible, give 50ml of a 50% dextrose solution (5ml/kg BW of 10% Dextrose solution for children) for treatment of possible hypoglycaemia
- Give IV fluids to help the kidneys flush out the poison
- Refer them to hospital, after initial stabilisation. Send the packet or bottle of the poison taken if available with the patient. The family must understand that sudden deterioration can occur at any time
- Poisoning with kerosene/petroleum/acids occurs in children <5 years (accidental ingestion) and people with suicidal intent. This is corrosive poisoning. In such cases, NG tube insertion is contraindicated: patient should not be made to vomit, stomach wash should not be given nor Activated Charcoal. Rapid referral to a tertiary centre is indicated.

DIAGNOSTIC FEATURES AND MANAGEMENT OF COMMON POISONING

	Organophosphorus	Rodenticide	Mushroom	Datura	Kerosene / petroleum
Diagnostic features	<p>Typical smell (organophosphorus)</p> <p>Excessive salivation, diarrhoea, vomiting, lacrimation, sweating, urinary incontinence</p> <p>Constricted pupil</p> <p>Bradycardia</p> <p>Dyspnoea</p> <p>Drowsiness, fasciculation, seizures</p>	<p>Commonly available: zinc sulphide</p> <p>GI symptoms (nausea, vomiting, abdominal pain)</p> <p>Difficulty breathing</p> <p>Shock</p> <p>Convulsions</p>	<p>The most lethal mushroom is Amanita phalloides</p> <p>Abdominal pain, nausea, vomiting, diarrhoea</p> <p>Bradycardia, hypotension, lacrimation, blurred vision, constricted pin point pupils</p>	<p>Dry mouth, difficulty swallowing, blurred vision, dilated pupils, fever, fast pulse, confusion</p>	<p>Typical smell, abdominal pain, cough, redness or blisters around mouth; wheeze, breathing difficulties, may have seizures</p> <p>May have fever, may have reduced oxygen saturation</p>
Management	<p>Clear secretions from mouth</p> <p>If patient presents within 1 hour of taking poison: gastric lavage</p> <p>Wash skin and eyes for 20min</p> <p>Remove any contaminated clothing and belongings</p> <p>Maintain IV line</p> <p>If pulse rate is <60/minute: Inj atropine 3-5 ampules IV bolus (0.6mg/ml), repeat every 3-5 min and assess every 5-15 min till the signs of atropinisation occur (dry mouth, dry tongue, dry axilla, tachycardia, dilated pupil, clear lungs, SBP >80mm Hg)</p> <p>Inj Pralidoxime 30mg/kg in 100ml NS over 30 minutes</p> <p>Inj diazepam 5-10mg IV or Per Rectum (PR) if seizure occurs</p> <p>Use NG tube for unconscious patient</p>	<p>If patient presents within 1 hour of taking poison: gastric lavage</p> <p>Activated charcoal within 1 hour of presentation</p> <p>Symptomatic care: Crush 4 antacid tablets (NLEM) stat and crushed 2 tabs four times a day (QDS)</p>	<p>If patient presents within 1 hour of ingestion of poison: gastric lavage with plenty of water</p> <p>Then activated charcoal</p> <p>If pulse rate <60/min: Give Inj atropine 1.8mg IV bolus. Repeat every 15 minutes, till pulse \geq80/minute</p> <p>Diazepam 5-10mg slow IV or PR, if seizures</p>	<p>If patient presents within 1 hour: Gastric lavage</p> <p>Cold sponging for fever.</p>	<p>Remove clothes</p> <p>Wash skin and eyes for 20min.</p> <p>Corrosive poisoning management is different:</p> <p>DO NOT DO GASTRIC LAVAGE</p> <p>DO NOT GIVE ACTIVATED CHARCOAL</p> <p>Supportive management only.</p> <p>IV fluids</p> <p>REFER</p>
REFER	REFER after initial stabilisation	REFER after initial stabilisation	REFER after initial stabilisation	REFER after initial stabilisation	REFER URGENTLY to tertiary centre

11. COMMON ENT AND EYE EMERGENCY CONDITIONS:

Common Eye and ENT conditions	Diagnosis	First aid management and referral
Epistaxis	Any amount of bleeding from nose	Pinch nose with thumb and fore finger for 10 minutes. Maintain Airway Maintain position- lean forward to prevent aspiration. Instil Oxymetazoline nasal drops. Apply ribbon gauze soaked in 2% lignocaine with adrenaline to fill the nasal cavity in layers. Refer if bleeding continues.
Foreign body in throat	Difficulty in swallowing, painful swallowing	Remove with the blunt forceps if visible. Refer immediately if h/o coughing, choking and wheeze on chest exam.
Foreign body in ear canal	Ear fullness, pain, hearing loss, tinnitus.	Non-living- perform syringing or grasp with tweezer if visible. Living- Instil 2-3 drops of oil in ear and remove if visible. Refer if no improvement.
Foreign body in eye	Pain, blurred vision, red eye, photophobia	Remove foreign body with damp cotton if visible under the eye lid. Flush with flowing water on the eyelid as you hold it open. Refer immediately if foreign body is present in cornea. Apply ciprofloxacin eye drop (2 drops) before referral.

CHAPTER III

COMMON SYMPTOMS

1. GENERAL CONSIDERATIONS ON PAIN

Physical pain is an unpleasant experience usually caused by injury or inflammation. Pain alerts people to harm, prevents people making injuries worse and enforces rest when it is needed.

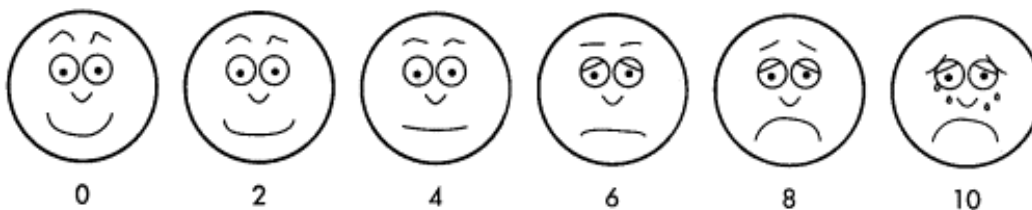
Treating pain is important. Pain not only causes physical discomfort, but can also cause sleep disturbance and low mood and sometimes delays recovery.

CAUSES

When treating pain, the causes have to be established. Traumatic injury is most common cause of pain in children. Mental stress and tension can cause headaches and abdominal pain. Surgical procedures without adequate analgesia cause pain, as can arthritis, cancer and infections.

DIAGNOSTIC FEATURES

Evaluation of pain



A scale can be used to quantify pain, from 0 to 10, where 0 = no pain and 10 = the worst pain imaginable. The above picture illustrates how these values correspond to the respective facial expressions.

MANAGEMENT

- 1) Psychological methods
- 2) Physical methods
- 3) Pharmacological methods.

1) Psychological Methods: 10 simple methods of reducing pain in children undergoing a procedure:

- Explanation
- Openness and honesty
- Familiarity – Show the equipment to be used
- Trust – Gain the patient's trust
- Clear simple communication – Use simple language when explaining things
- Ideas and expectations – Explore the patient's wishes. Allow the patient to take part in decision-making regarding their treatment
- Relaxation – Help the patient to feel comfortable. The presence of a trusted relative alone can help a patient feel less threatened
- Distraction – Distract the patient. When they concentrate on something else, they feel less pain.

2) Physical Methods:

Applying heat or cold can help to reduce pain through sensory distraction. Massage is also helpful and works in a similar way.

3) Drug treatment:

For simple pain relief, use paracetamol or ibuprofen – these can be given at home. Before performing procedures, apply 1% or 2% lignocaine solution directly on the skin, by soaking a gauze pad with it and applying to the skin for 5–10 minutes.

In more long-term pain, the best pain control comes with regular dosing. If one or two doses of paracetamol have not eased the pain, ibuprofen can also be given at full dose at the same time.

Dosing tips:

- Make sure you know the cause of pain and treat this, too
- In continuing pain, dose regularly – 6-hourly for paracetamol and 8-hourly for ibuprofen
- Tab Hyoscine 10-20mg PO TDS for abdominal colicky pain.
- Waiting for the pain to return before taking another dose makes pain harder to control.

Sometimes other types of medicine can also help the pain:

- Amitriptyline can relieve pain in herpetic (post-shingles) pain or migraine where powerful analgesics are less helpful
- Diazepam can be a powerful pain-reliever in acute muscle spasm, and augments analgesics after an accident, for example. Diazepam should only be used for a maximum of a few days due to the fact it is addictive
- Propranolol (NLEM) is sometimes very useful in relieving or controlling migraine
- Antidepressant medicines can often help relieve pain, especially in serious diseases such as cancer.

2. CHEST PAIN

Chest pain is the most common presentation of both cardiac and pulmonary disease. It is also frequently caused by musculoskeletal disorders and diseases of the GI system.

Common causes of chest pain

- Cardiac causes – angina pectoris, pericarditis, MI
- Pulmonary causes – pneumonia, Tuberculosis (TB), bronchitis, tracheitis, pneumothorax, pulmonary embolism
- Musculoskeletal and skin – trauma, costochondritis, herpes zoster
- GI causes – cholecystitis, oesophagitis, Gastroesophageal Reflux Disease (GERD), pancreatitis, perforated ulcer
- Psychogenic chest pain – anxiety disorder.

Serious disorders not to be missed: MI, malignancy, serious infections, pulmonary embolism, perforated ulcer.

Difference between cardiac and pulmonary causes of chest pain

Cardiac chest pain	Pulmonary chest pain
Chest pain is centrally located, or often on the left side of the chest	Chest pain may be located anywhere in the chest
Pain radiates to the left shoulder, arm, neck and jaw	Usually, no radiation of pain
Exertion and emotion aggravate pain	Pain is aggravated by coughing and deep inspiration
Pain may be associated with sweating, nausea, etc.	Pain usually associated with cough and/or dyspnoea

DIAGNOSTIC FEATURES

- Angina pectoris: Sudden chest pain or discomfort lasting less than 20 minutes, retrosternal chest pain, radiating to left arm or neck, aggravated on exercise, relieved by rest.
- MI: Sudden-onset chest pain or discomfort, and generally with HTN, DM and smoking history, presents with severe left-sided chest pain lasting more than 20 minutes, radiating to the left arm even during rest; patient may feel as if they are dying.
- GERD: Pain is retrosternal, burning in nature and more common after meals, or at night (lying down), sometimes associated with dry cough
- Pleuritis (may be associated with pneumonia or pulmonary embolism): Sharp chest pain aggravated on deep inspiration and coughing, may have pleural rub on auscultation, often with fever, cough, dyspnoea
- Trauma (rib fracture, haemothorax, pneumothorax): Severe chest pain, worse with breathing and movement; dyspnoea.
- Costochondritis: Sharp pain with local tenderness over rib joints or aggravation with movement
- Anxiety disorder: Chest heaviness/tightness, chest pain, associated with palpitation, subjective feeling of shortness of breath, fear associated with stress.

MANAGEMENT**Drug treatment:**

- Pain management –Tab paracetamol/ibuprofen for costochondritis, pleuritis
- Antacid/ranitidine for GERD
- Treatment of specific cause in relevant chapters.

ADVICE

Depending on the cause.

REFERRAL

- All chest pain should be referred if there is no improvement with simple analgesics (see Chapter X, Section 3, Coronary Artery Disease)
- Urgent referral: Dizziness/syncope, pain in the arms (Left>Right), jaw, thoracic back pain, sweating, palpitations, dyspnoea, pallor, past history of DM, HTN, myocardial ischaemia
- Chest pain associated with trauma, severe chest pain lasting more than 30 minutes, suspected angina, hypotension, HTN, dyspnoea, chest pain with rigid upper abdomen on examination.

3. BREATHLESSNESS/SHORTNESS OF BREATH

Breathlessness is a symptom with multiple possible causes and it is important to try to discover which system of the body is in difficulties:

DIAGNOSTIC FEATURES

- Breathlessness with blue peripheries: a patient is likely suffering from a respiratory or heart problem
- Breathlessness with noisy breathing/musical breath sounds: asthma or Chronic Obstructive Pulmonary Disease (COPD)
- Breathlessness with pale appearance: acute blood loss and anaemia (common in women of reproductive age) are common causes of breathlessness
- Slowly worsening breathlessness: suggests blood loss, anaemia, including cancer and TB
- Intermittent shortness of breath without obvious cause: may be due to anxiety
- Breathlessness that frequently wakes patients in the middle of the night is probably cardiac
- Thyroid disease can be another cause of breathlessness.

Danger signs

- Haemoptysis (coughing blood), night sweats, chronic cough for more than three weeks, lethargy, weight loss, sudden-onset breathlessness with chest pain but no fever
- On examination: Unexplained weight loss, on auscultation reduced air entry in the absence of infection.

Differential Diagnoses for common causes of Breathlessness as Symptom

- Cough, fever, associated with rashes, audible wheeze on auscultation, young age group- Bronchial Asthma
- Cough, productive sputum, wheeze or decreased air entry on auscultation, smoker, and common in old age- COPD
- Chest pain tachypnoea, tachycardia, associated with immobilization- Pulmonary embolism
- Cough, leg edema, raised JVP, worse lying down- Heart failure
- Cough, fever, chest pain, Crepitations on particular area of lung- Pneumonia
- Chronic cough, productive sputum or haemoptysis, weight loss, evening rise fever- TB

MANAGEMENT

- According to cause:
- For asthma/COPD: See Chapter X, Section 2 (Asthma and COPD)
- For anaemia: See Chapter VII, Section 2 (Anaemia in Pregnancy), and National Nutrition Program (Micronutrient Supplementation)
- For chest infection: See Chapter IX, Section 10 (Respiratory Tract Infections).

ADVICE

If pulmonary: advise avoiding smoke and dust; if anxiety is a major factor, teach breathing techniques; in cardiac disease, advise raising the head end of the bed at night; cardiac disease/COPD: adapt level of activity.

REFERRAL

- Refer all patients who are breathless even at rest
- Refer if suspected pulmonary embolism, heart failure, lung cancer, TB.

4. COUGH

Cough is usually associated with lung problems; a short history of cough associated with runny nose/sore throat/mild fever and no significant breathlessness is a very common presenting symptom or URTI and needs no treatment. Sometimes this type of cough can persist for more than two weeks, but if it is slowly improving, no investigations are needed.

DIAGNOSTIC FEATURES

- Cough with fever and breathlessness – Pneumonia
- Cough which occurs mainly at night – consider asthma, cardiac disease
- Cough with exertion – asthma or COPD
- Dry cough with no other chest symptoms – reflux disease, worm infestation; can also be caused by ACE inhibitor.
- Cough >3 weeks with fever/weight loss/general illness – TB or cancer
- Sudden-onset cough, breathlessness and chest pain: with fever – pneumonia; without fever (or low-grade fever) – pulmonary embolism.

MANAGEMENT

Depends on cause; cough in itself does not need treatment; if cough is severe and disturbing sleep, steam inhalation, cough syrup, honey in hot water, small doses of codeine tablets – 15mg (NLEM) TDS can all help.

Syp Salbutamol 2TSF pf BD/TDS if persisting wheeze(Adults).

ADVICE

Cough in itself is not a worrying feature; avoid situations that cause cough to worsen; in nocturnal cough, try raising head of bed; if associated with anti-hypertensives, change medication.

REFERRAL

- If cough has persisted for more than 3 weeks, and is not improving, refer.
- Cough with associated symptoms like hemoptysis, weight loss, high grade fever, chest pain and dyspnea.

5. ABDOMINAL PAIN

Abdominal pain is the most common symptom of disease of the GI, urinary and reproductive systems.

CAUSES

Medical causes	Surgical causes
Diarrhoeal disease	Acute appendicitis
Gastritis/Acid Peptic Disease (APD)	Acute cholecystitis
Worm infestation	Perforated peptic ulcer
Typhoid fever (enteric fever)	Intestinal obstruction
Diabetes ketoacidosis	Peritonitis
Constipation	Renal/ureteric colic
Inflammatory bowel disease	Trauma
Pelvic inflammatory Disease (PID)	Twisted/ruptured ovarian cyst
Urinary Tract Infection (UTI)	Ruptured ectopic pregnancy
Menstrual or ovulation pain	Pancreatitis
Endometriosis	Obstructed hernia
Non-specific abdominal pain	Intussusception

DIAGNOSTIC FEATURES

- Pain in the epigastric region, which is aggravated by food, could be due to gastric ulcer; pain relieved by eating could be due to duodenal ulcer
- Pain in the right hypochondria, especially after fatty meals, radiating to right shoulder or back, is likely due to biliary colic/acute cholecystitis
- Severe abdominal pain associated with vomiting and constipation may be due to intestinal obstruction
- Colicky pain in the loin radiating down to groin may be due to ureteric calculus
- Pain in the right iliac fossa associated with fever, vomiting and rebound tenderness at McBurney's point indicates acute appendicitis
- Epigastric pain, radiating to back, relieved on leaning forward position: Pancreatitis
- Young child with sudden-onset severe colicky abdominal pain, at intervals of every 15min, sausage shaped mass in right side of the abdomen, often associated with bloody stool: intussusception
- Lower abdominal pain and guarding associated with amenorrhoea, slight per vaginal spotting/bleeding: complication of pregnancy (may be ectopic pregnancy)
- Flank pain with high-grade fever with chills and rigor and renal angle tenderness on percussion: acute pyelonephritis.

MANAGEMENT

- For diarrhoeal disease, typhoid fever, worm infestation: See Chapter IX, Section 9 (Gastrointestinal Infection)
- For gastritis/APD: See Chapter X, Section 7 (APD)
- For diabetic ketoacidosis: See Chapter X, Section 1 (HTN and DM)
- For UTIs, PID: See Chapter IX, Section 12 (Genitourinary Infections).

Drug Treatment

- For symptomatic relief of non-specific pain, give hyoscine butyl bromide (10mg) tablet TDS.
- In severe cases, Inj hyoscine 20mg IV can be given
- Ureteric colic: can be given Inj diclofenac 75mg IM for pain relief.
- Suspected cases of gastric or duodenal ulcer should be treated with ranitidine before referral
- Give Inj ceftriaxone 1g IV for acute appendicitis/cholecystitis/pyelonephritis/pancreatitis before referral – give IV fluids and keep patient nil per oral.
- Suspected obstruction/ectopic pregnancy/intussusception – give IV fluids, keep patient nil per oral and refer urgently.

REFERRAL

- All patients with a suspected surgical cause should be referred to hospital.
- Refer if not responding to initial management.

6. NAUSEA AND VOMITING

Nausea and vomiting may be due to diseases of the digestive, urinary, cardiovascular and nervous system.

CAUSES

- Meningitis (associated with fever and headache, neck stiffness, photophobia, sometimes rash)
- Migraine headache
- (Rare: headache of brain tumour)
- Food poisoning/acute gastroenteritis
- Ischaemic heart disease (associated with chest pain)
- Intestinal obstruction
- Gastritis/gastric or duodenal ulcer/oesophageal varices
- Drugs/poisonous plants/mushrooms
- Motion sickness
- Tonsillitis and otitis media in children
- UTI in children and elderly
- Malignant HTN (hypertensive crisis)
- Morning sickness (hyperemesis gravidarum)
- Labyrinthitis/benign positional vertigo/Meniere's disease.

DIAGNOSTIC FEATURES

- Nausea and vomiting associated with sudden-onset crushing chest pain, collapse, cold sweat, low BP, especially in patients over 35 years of age: consider MI
- Vomiting blood: bleeding from oesophagus and stomach, coffee ground emesis - bleeding from stomach/duodenum
- Vomiting (bilious fluid or feculent) associated with constipation (passing no stool or wind) and abdominal pain: intestinal obstruction
- Fever and vomiting: consider UTI, (tonsillitis/otitis media in children); if also headache and photophobia: suspect meningitis
- Headache and vomiting: may be migraine headache; if worse at night and worsening slowly over weeks – brain tumour
- Vomiting due to drugs/poisonous plants: patient may give relevant history
- Amenorrhea, loss of appetite associated with vomiting: pregnancy
- Vomiting associated with loose stools and abdominal pain occurs in gastroenteritis or food poisoning (usually nausea starts before diarrhoea)
- Motion sickness: Vomiting during travel
- GI malignancy: weight loss and vomiting, may be blood stained, may have melena
- Inner ear problems (labyrinthitis, benign positional vertigo/Meniere's) – sudden onset of vertigo and vomiting, usually provoked or made worse by movement; in case of Meniere's disease, associated with hearing loss and recurrent episodes
- Hypertensive crisis – vomiting and headache associated with extremely high BP (SBP >180 or DBP >120).

MANAGEMENT**Drug treatment:**

- Symptomatic:
 - o Tab promethazine Hydrochloride (HCL): 25mg, one tablet TDS for 2 days OR
 - o Inj promethazine HCL: 25mg/ml (25–50mg) IM in severe cases OR
 - o Tab metoclopramide: 10mg PO TDS for 3–5 days (NLEM)
- In case of vomiting associated with food poisoning/gastroenteritis/inner ear problems/UTI/pregnancy/motion sickness: small amounts of fluid repeatedly
- In case of vomiting cause by UTI/tonsillitis/otitis: start antibiotics as well as symptom treatment
- When surgical cause is suspected, keep nil by mouth, give IV fluids and REFER URGENTLY
- Suspected meningitis/cardiac cause/hypertensive crisis: emergency management and REFER URGENTLY
- Suspected malignancy: refer for assessment.

ADVICE

- Pregnancy vomiting: take small frequent meals, avoid raw foods, avoid fat; ginger will be helpful
- Motion sickness: take enough fluid, relax while travelling (close eyes), have adequate sleep before travel, sit in front of vehicle and watch the road. Taking promethazine or other antiemetic before travel will help
- Food poisoning/gastroenteritis: drink small amounts of fluids frequently, even if still vomiting (some will be absorbed); ORS is best.

REFERRAL

- Blood vomiting, black tarry stool, peritoneal signs (tense painful abdomen on palpation), signs of hypovolaemia, bile vomiting, vomiting associated with abdominal distension and no passage of stool or gas PR
- Headache with fever and neck stiffness; chest pain; very high BP that does not settle with pain relief;
- Any vomiting that does not settle with simple treatment.

7. HEADACHE

Headache is one of the most common problems for which patients come to health institutions.

DIAGNOSTIC CRITERIA

1. **Migraine headache:** Moderate to severe unilateral headache lasting for 4-72 hours, can be pulsatile, often associated with nausea, vomiting or photophobia, headache worsened by routine physical activity, sometimes associated with aura (visual changes before the headache starts, rarely also odd smell or paralysis of part of the body can be part of an aura), associated with family history.
2. **Tension headache:** Related to tight muscles in scalp and neck/shoulders; mild to moderate headache lasting 30min to seven days, usually bilateral location, non-pulsatile type, common in occiput or temples, tight pressure feeling headache, can be almost daily, worse during the day and with stress/anxiety, usually relieved by rest.
3. **Cluster headache:** Severe type of frontal or temporal headache, mostly over one eye, occurs at unpredictable intervals, lasts 15 min to 180 min, cluster last for four to six weeks (sometimes months) and then may not have any for months or years. Sometimes occurs suddenly during night, aggravated by alcohol intake, associated with lacrimation, rhinorrhoea and family history.
4. **Sinusitis:** Frontal or facial headache following URTI with features of nasal obstructions and fever, has diurnal variation, tender sinus may be evident; usually worse on coughing/sneezing and on bending down.
5. **Raised intracranial pressure:** Occurs in brain tumour, subdural haematoma and other forms of head injury, associated with projectile vomiting, seizure, drowsiness and focal neurological signs, worse at night (waking patient up).
6. **HTN headache:** It tends to occur only in severe HTN such as malignant HTN or hypertensive encephalopathy, typically occipital, throbbing, worse in waking in the morning.
7. **Headache in meningitis:** Severe headache with vomiting, fever, photophobia and neck stiffness.
8. **Headache in depression:** Headache is a common symptom in depression. It is usually a tension type headache and associated with other features of depression (low mood, sadness, fatigue, loss of appetite, suicidal thoughts).
9. **Headache associated with poor vision:** Usually a tension-type headache or just behind eyes; worse with fine work or reading, better in morning after rest. Patient often has difficulty reading fine print or may be short-sighted (check vision on Snellen chart).
10. **Headache associated with other eye problems:** Rarely, acute severe headache behind one eye may be sign of acute glaucoma – this needs urgent referral!

MANAGEMENT

Drug treatment

Tension headache, Sinusitis related headache, migraine:

- Tab paracetamol 500mg TDS

For migraine, cluster headache, sinus headache:

- Ibuprofen 400mg TDS works better (but should not be given for more than seven days)

For sinus headache: also give oxymetazoline nose drops, consider antibiotics (amoxicillin, doxycycline or azithromycin)

For suspected meningitis: give first dose of ceftriaxone 100mg/kg IV and REFER

For headache associated with high BP > 180/120mmHg: Amlodipine 10mg PO stat and REFER.

ADVICE

Tension headache, migraine: Rest in quiet and dark room, place cold packs on forehead, plenty of fluids, avoid trigger factors (stress, alcohol, chocolate, and smoking).

Have eye check if poor vision suspected.

REFERRAL

The following cases should be referred to hospital urgently:

- Headache associated with high fever, vomiting and signs of meningeal irritation
- Severe headache any time within four weeks after head injury
- Headache associated with reduced level of consciousness
- Headache associated with seizures
- Headache associated with projectile vomiting
- Headache associated with HTN not controlled by initial treatment
- Severe or worsening headache in pregnancy – especially if associated with high BP

Also refer the following for assessment:

- Headache associated with eye problems or double vision
- Slowly worsening headache which is worse at night and wakes the patient up
- Headaches in young children or elderly
- Headache associated with depression
- Any headache that does not respond to simple treatment and is affecting patient's quality of life.

8. FEVER

Normal human body temperature varies from 36.5–37.5°C or 97.7–99.5°F.

Fever is defined as a rectal temperature of over 38°C (100.4°F) or an oral temperature of over 37.5°C (99.5°F) or an axillary temperature of over 37.2°C (98.96°F).

Increased body temperature above the maximal normal body temperature is called fever. By itself, it is not a disease but a symptom of disease.

CAUSES

Fever is usually caused by infection by bacteria, virus or parasites, inflammation, malignancy, medical illness, drugs, etc.

Classical patterns of fever

- Continuous fever: Temperature remains above normal throughout the day and does not fluctuate very much over 24 hours, e.g. lobar pneumonia, typhoid, meningitis, UTI, or typhus
- Intermittent fever: The temperature elevation is present only for a certain period, later cycling back to normal, e.g. malaria, kala-azar, some forms of septicaemia or abscesses, many viral fevers.

DIAGNOSTIC FEATURES AND APPROACH

- **Fever with upper respiratory symptoms:**
 - o Rhinorrhoea, sneezing, nasal congestion, sore throat, headache, malaise: common cold
 - o Action: Supportive care, plenty of oral fluids, paracetamol, nasal decongestant, steam inhalation and throat gargles.
- **Fever with headache or changed level of consciousness:**
 - o Sinusitis: refer to Chapter XI, Section 2.11
 - o Meningitis/encephalitis/brain abscess/cerebral malaria/Japanese Encephalitis (JE): High-grade fever, headache, vomiting, drowsiness, agitation, irritability and sometimes seizure, neck rigidity will be present. Action: Refer after injecting ceftriaxone 1g IV bolus.
 - o Enteric fever: Refer to Chapter IX, Section 9 (Gastrointestinal Infection).
- **Fever with ear-related symptoms: Refer to Chapter XI, Section 2 (Ear, Nose and Throat (ENT) Disorders)**
 - o Otitis media: common in children. Refer to Chapter XI, Section 2 (ENT Disorders)
 - o Cholesteatoma or mastoiditis: Chronic ear discharge, severe earache, mastoid tenderness, REFER if those features are present.
 - o Otitis externa: Ear ache associated with itching; tragus sign positive, wet blotting paper appearance of External Auditory Canal (EAC). Action: antibiotic ear drops (ciprofloxacin 2 drops every 4–6 hourly for 5–7 days). Ibuprofen for pain; if severe: cloxacillin for 5–7 days.
- **Fever with throat-related problems: Refer to Chapter XI, Section 2 (ENT Disorders).**
- **Fever with lower respiratory symptoms: Refer to Chapter IX, Sections 2 and 10 (TB, Respiratory Tract Infections, TB).**
- **Fever with GI symptoms:**
 - o Hepatitis: Right-upper-quadrant pain, nausea and vomiting, jaundice, myalgia, tenderness at right hypochondrium. ACTION: Supportive care, antiemetic, oral fluids, reassurance as viral hepatitis settles on its own. REFER if complications (chronic hepatitis, cirrhosis, anaemia) present

- o Acute diarrhoea: refer to Chapter IX, Section 9 (Gastrointestinal Infection).
- o Malaria: Refer to chapter IX, Section 4 (Malaria).
- o Appendicitis/cholecystitis/pancreatitis.
- **Fever with dysuria or flank pain: Refer to Chapters IX, Sections 12 and 13 (Genitourinary Infections, UTI).**
- **Fever with abdominal pain and vaginal discharge: Refer to Chapter IX, Section 12 (Genitourinary Infections).**
- **Fever with rash:**
 - o Refer to Chapter IX, Section 11 (Eruptive Lesions: measles, rubella, chicken pox)
 - o Dengue: refer to Chapter IX, Section 7 (Dengue)
 - o Scrub typhus: see below.
- **Fever with joint pain: Refer to Chapter X, Section 6 (Musculoskeletal Pain). Simple viral infections can also cause joint and muscle pains, usually mild.**
- **Fever with myalgia: Body ache, anorexia, somnolence, and sick appearance: acute viral fever/influenza. Action: Supportive care, paracetamol.**
- o Scrub Typhus: A mite-borne infectious disease caused by Rickettsia. It is transmitted by mite bite common among farmers and in endemic zones. Presents with long-lasting fever, nausea, vomiting, diarrhoea, generalised headache, diffuse myalgia, rash (non-pruritic, macular or maculopapular, typically begins on the abdomen and spreads to extremity), eschar (painless papule with black crust, often appears at the site of infecting bite), lymphadenopathy, splenomegaly, jaundice, dyspnoea and cough, relative bradycardia. ACTION: Treatment with Tab doxycycline 100mg oral BD for 7 days. REFER for severe forms. Advise about mite control
- **Fever with chills and rigor:**
 - o Malaria: Refer to Chapter IX, Section 4 (Malaria)
 - o Pyelonephritis: Flank pain, dysuria, and renal angle tenderness. ACTION: Start antibiotic treatment with Inj ceftriaxone 1gm IV, and REFER.
 - o Internal body organ abscess: Persistent fever, tender abdomen, jaundice. ACTION: start antibiotic treatment with IV ceftriaxone and metronidazole and REFER.
- **Prolonged fever of infectious origin which may not have any localising signs:**
 - o Leptospirosis: Widespread zoonotic disease caused by Leptospira. Transmission may follow after direct contact with urine, blood or tissue of infected animal. Presents with fever with rigor and chills, myalgia, headache, cough, bone and joint pain, abdominal pain. In severe form, presents with oliguria, jaundice, dyspnoea, petechial rashes. ACTION: Cap doxycycline 100mg PO BD for 7 days. REFER for severe forms
 - o Typhoid Fever: Refer to Chapter IX, Section 9 (Gastrointestinal Infection)
 - o Rickettsia fever (including Scrub Typhus): May have eschar and lymphadenopathy, rash, myalgia. ACTION: Doxycycline 100mg PO BD for 7 days
 - o Dengue: Refer to Chapter IX, Section 7 (Dengue)
 - o HIV: Refer to Chapter IX, Section 1 (HIV/AIDS)
 - o Kala-azar: (See Chapter IX, Section 6) usually enlarged liver and/or spleen, weight loss, signs of anaemia – REFER all suspected cases
- **Pyrexia of Unknown Origin (PUO):** Fever >3 weeks, fever higher than 38.3°C/101°F on several occasions and no diagnosis made even after one week of extensive basic inpatient investigation. Caused by Infections, malignancy, autoimmune diseases, iatrogenic, etc. ACTION: REFER

MANAGEMENT**Drug treatment:**

- Tab Paracetamol 500mg one to two tabs three to four times a day can be given
- For children: paracetamol 20mg/kg BW three to four times a day can be given
- Sometimes ibuprofen is more effective for short-term treatment of fever and pain.
- Management of Rheumatic fever leading to Rheumatic Heart Diseases (RHD) for the secondary prophylaxis of RHD- Inj Benzathine benzylpenicillin - <30kg: 6 lakh IU, >30kg 12 lakh IU IM every 3 weeks.

Refer to each chapter for common infections.

ADVICE

Maintain sufficient fluid and calorie intake, cold sponging.

COORDINATION AND NOTIFICATION WITH Health Office/LOCAL HEALTH UNIT

Coordinate for notifiable diseases like malaria, filaria, HIV/AIDS, TB, cholera, measles etc.

9. DIZZINESS OR VERTIGO

Dizziness is a difficult symptom because it can be the result of a great many illnesses, from life-threatening to trivial.

The causes of dizziness can be classified into two main categories:

- Sudden-onset, severe, lasting only minutes/hours or days
- More gradual onset and lasting over days/weeks or months.

CAUSES**Causes of sudden-onset, “spinning round” (vertigo):**

- Less dangerous: Inner ear disease (rarely tumour) – Meniere’s disease, paroxysmal benign positional vertigo, labyrinthitis
- Serious and potentially life-threatening: Bleeding within the skull, stroke.

Some causes of less sudden, or less clearly described dizziness:

- Anxiety, stress, depression, anaemia, abnormal BP, heart disease, dehydration, early pregnancy, epilepsy, cancer, TB etc.

DIAGNOSTIC FEATURES

Benign inner-ear-related dizziness: Usually, this starts suddenly, often associated with some nausea or vomiting; patient feels that room is spinning, but usually only when moving head or body. Patient has no other symptoms and feels normal when keeping still. Often this resolves within two to three days.

Examination for dizziness:

- Vital signs: BP, pulse (if pulse is irregular or abnormally slow or fast, this points to heart problem), temperature; also check BP sitting and standing: after patient has been sitting, squatting or lying down for at least five minutes, ask them to stand up smoothly and stand still without holding onto anything. Then re-check BP; a drop by more than 10mm Hg is abnormal
- Consider checking Haemoglobin (Hb) if suspecting anaemia

- Check whether there is dizziness with change in position: sit patient up on examination bed with legs stretched out; ask to turn head to one side, then ask them to lie down smoothly; ideally, the patient will end up with the head a bit lower than the shoulders – check other side the same way; if this causes vertigo with only one of the two tests, it is likely to be a problem of the inner ear on that side
- Check balance: heel-to-toe walk (ask patient to walk in a straight line with the heel of one foot placed just in front of the toes of the other); if they are unable to do this, it may point to a brain problem causing dizziness (also abnormal in excessive alcohol and in severe acute mountain sickness)
- Examine neck for pain and restriction of movement
- Check for hearing: standing one metre behind the patient, ask them to cover one ear with their hand. Whisper numbers and ask the patient to repeat
- Check with an otoscope for ear drum perforation and wax
- Check eyes for pupil size and reaction and for nystagmus: abnormal flicking movement of eyes.

MANAGEMENT

Drug treatment: Generally, patients with dizziness need referral – before referral, drug treatment may be helpful to ease symptoms if transport will take some time.

Promethazine may be helpful and can help sleep if this is disturbed.

Inj pheniramine 25mg (NLEM) may be given for severe dizziness and nausea.

ADVICE

In patients with benign vertigo (confirmed by physician/ENT surgeon): Explanation and reassurance, avoid excess intake of tobacco, coffee, alcohol; advise that vertigo should improve within a few days, and needs review if not getting better.

REFERRAL

All patients at initial presentation but refer urgently:

- Any vertigo that persists even when patient is not moving at all
- Persistent nystagmus
- Neurological signs: limb weakness, decreased sensation in the limbs, facial deviation
- Hypertensive crisis (SBP >200mm Hg with vertigo and other symptoms)
- Vertigo following trauma
- Recurrent episodes of vertigo associated with tinnitus and hearing loss (refer to ENT).

10. SYNCOPE (SUDDEN COLLAPSE OR LOSS OF CONSCIOUSNESS)

Syncope means a sudden collapse or loss of consciousness that happens with little warning and is of short duration (a few seconds or minutes). For prolonged unconsciousness see Chapter II, Section 3 (Unconscious Patient).

CAUSES

- Cardiac: mainly arrhythmias or valve disease
- Vascular: orthostatic (low BP) or vasovagal (triggered by stress, long periods of standing, sometimes by coughing, passing urine, more common in pregnancy)
- Cervical spine: rarely, syncope can be triggered by head movements in cervical spine problems
- Neurological: absence epilepsy, stroke, intracranial bleed, conversion disorder
- Metabolic: hypoglycaemia.

DIAGNOSTIC FEATURES

- Cardiac syncope: Sudden collapse and unconsciousness and spontaneous recovery. May be triggered by exercise or completely random; patient may have history of cardiac disease or family history of sudden death; on examination, pulse may be irregular or very slow/fast; there may be a heart murmur on auscultation
- Vascular syncope: Usually patient gets some warning (feeling of impending collapse) and may be able to sit down in time before falling; sometimes very short seizure-like movement may be present; usually, patient recovers quickly if lying flat or with feet elevated. On examination, BP may be low, pulse usually normal; exam is otherwise completely normal
- Cervical syncope: Sudden collapse triggered by movement of head, especially looking up; cervical spine may be tender or stiff on exam, there may be a vascular murmur on auscultation of arteries in neck
- Neurological: May be related to some other neurological symptoms, such as confusion, period of drowsiness after the collapse, weakness of one part of the body
- Conversion disorder: May present as sudden loss of consciousness or seizure-like symptom; physical examination normal. Generally, on enquiry, stress/anxiety/depression are present
- Hypoglycaemia: Generally, a history of DM is known and patient is on glucose-lowering medication. Hypoglycaemia can also happen in patients who drink excessive amounts of alcohol. Patients recover quickly after administration of any glucose-containing substance sublingually or IV.

MANAGEMENT

Drug treatment:

If hypoglycaemia is suspected, treat with 50ml of 50% dextrose IV or orally, refer to higher centres if patient have DM for adjusting dosage or medication,

ADVICE

- In simple orthostatic or vasovagal syncope, reassure and advise to stay well hydrated, avoid situations that trigger syncope (sit down when coughing or passing urine, if these trigger collapse; do not stand for long periods etc.)
- In conversion disorder counsel family on nature of psychological condition; advise counselling if possible.

REFERRAL

- Generally, all cases need referral to confirm diagnosis; refer any patients with suspected cardiac cause urgently.

11. ITCHING (PRURITUS)

Itching skin can be caused by many different problems. In most cases, especially if localised to one area, it is related to a skin problem, but generalised itching can also be caused by other illnesses, such as anaemia, liver disease, thyroid disease and others.

Differential diagnoses for itching (pruritus)

	Generalised itching	Localised itching
Associated with rash but no fever (See Chapter IX, Section 11 (Eruptive Lesions) for rash with fever)	Allergic rash, viral infection, pregnancy-related, liver disease, eczema, scabies, psoriasis	Fungal infection, contact allergy, insect bites, herpes simplex, herpes zoster, scabies, psoriasis, impetigo
No skin changes	Thyroid disease, anaemia, liver disease, kidney disease, pregnancy-related, DM, psychosomatic, dry skin	Early herpes zoster, scabies
Associated with other symptoms	Jaundice – liver disease; pallor – anaemia; tiredness, dry skin – thyroid disease	

MANAGEMENT

Treatment with antihistamine: promethazine, cetirizine (NLEM)
Other treatment as per cause.

REFERRAL

All cases where diagnosis is not clear and no response to simple treatment.

12. FATIGUE AND WEAKNESS (GENERALISED)

Generalised weakness or fatigue is a lack of power or extreme tiredness affecting the whole body, or when physical activity causes more exhaustion than normal.

For localised weakness that only affects one part of the body see Chapter X, Section 4 (Stroke).

CAUSES

- Anaemia (hookworm, heavy menstrual bleeding, GI bleeding, malnutrition, trauma, problems with absorption of iron or vitamins)
- Infections (TB, typhoid, HIV, malaria, kala-azar, influenza)
- Systemic diseases (DM, thyroid disorder)
- Chronic respiratory problems (asthma/COPD/other lung disease), heart failure, chronic kidney failure or liver disease
- Cancer
- Mental health: depression, excessive alcohol use.

DIAGNOSTIC FEATURES

- Take history – duration of fatigue, sleep pattern, weight loss or gain, appetite, bowel and bladder function, other specific symptoms?
- Check vital signs (BP, temperature, pulse, RR, peripheral oxygen saturation if available)
- Assess for pallor, jaundice, oedema
- Examine heart and lungs, for abnormal sounds, abdomen for masses, swelling (ascites), enlarged liver or spleen
- Hb test and urine routine.

FEATURES OF COMMON CAUSES

Anaemia: pallor, fast Heart Rate (HR), breathless on exertion, may have history of blood loss (vaginal bleeding, melaena), or of chronic GI problems

Infections: fatigue associated with fever and other symptoms depending on cause

DM: weight loss, thirst, excessive urine production, sometimes problems with vision, sometimes recurrent infections

Thyroid disorder: often changes in skin, swollen legs, muscle aches, may have diarrhoea or constipation, weight loss or weight gain without obvious cause

Chronic respiratory problems: fatigue associated with cough and/or breathlessness

Heart failure: breathlessness on exertion, night-time urine production, swelling of legs; often fast pulse and heart murmur on exam

Chronic kidney or liver disease: may have change in skin colour, change in urine colour or amount, sometimes swelling of face, legs or abdomen, usually weight loss and decreased appetite

Cancer: depending on type of cancer may have other symptoms, weight loss; may have recurrent infections; possible pain or masses on examination or enlarged lymph nodes; note that most cancer therapy also causes fatigue and weakness

Mental Health: history of mental health symptoms or excessive alcohol use, often disturbed sleep pattern.

MANAGEMENT

- **Anaemia:** Address acute bleeding with IV fluids and refer for blood transfusion, identify the cause of anaemia and treat accordingly. Treat with albendazole (400mg single dose), ferrous sulfate 60 mg and folic acid 0.4 mg TDS for 90 days
- **Infections:** See respective chapters (Chapter IX)
- **DM:** See Chapter X, Section 1 for management
- **Suspected symptoms of thyroid disease (hypo- and hyperthyroidism):** Refer to hospital
- **Suspected heart/lung/liver/kidney disease/cancer:** Refer for further investigations
- **Depression, alcohol use:** See mental health guidelines

PART THREE

PREVENTIVE AND PROMOTIVE HEALTH SERVICES

CHAPTER IV

NATIONAL IMMUNIZATION PROGRAM

१. राष्ट्रिय खोप कार्यक्रम

राष्ट्रिय खोप कार्यक्रम नेपाल सरकारको प्राथमिकता प्राप्त राष्ट्रिय कार्यक्रम हो । लक्षित उमेर र समूहका विभिन्न व्यक्तिहरूलाई खोपबाट बचाउन सकिने रोगहरू विरुद्ध तोकिएका खोपहरू दिने, खोप सेवाको गुणस्तरीयता सुनिश्चित गर्ने लगायतका क्रियाकलापहरूको समष्टिगत स्वरूप नै राष्ट्रिय खोप कार्यक्रम हो जसमा नियमित खोप सेवा, अभियानको रूपमा सञ्चालन गरिने खोप सेवा, खोप लगाएपछि हुनसक्ने अनपेक्षित घटना (ए.ई.एफ.आई.)को खोजपडताल तथा निगरानी (सर्भिलेन्स), खोपबाट बचाउन सकिने रोगहरूको सर्भिलेन्स, खोप एवम् अन्य खोपजन्य सामग्रीको भण्डारण र वितरण तथा खोपजन्य फोहर व्यवस्थापनका पक्षहरू समेटिएको हुन्छ । यो कार्यक्रमको मुख्य लक्ष्य खोपबाट बचाउन सकिने रोगहरूको रोग लाग्ने दर, मृत्यु हुने दर र अपाङ्गता हुने दर कम गराउनु हो । नेपाल सरकारले राष्ट्रिय खोप कार्यक्रममा समेटेका सबै खोपहरू निःशुल्क उपलब्ध हुन्छन् ।

खोप सेवा मासिक देशभरका १६,००० भन्दा धेरै खोप केन्द्र र १७००० भन्दा धेरै खोप सेसनहरू का साथै निजी तथा गैरसरकारी स्वास्थ्य संस्थाहरू मार्फत उल्लेखित खोप केन्द्रहरूबाट प्रदान गरिँदै आएको छ ।

संस्थागत खोपकेन्द्र (Fixed Session) : प्रत्येक महिना, प्रत्येक स्वास्थ्य संस्था बाट

बाह्य खोप केन्द्र (Out Reach Sessions) : प्रत्येक महिना, साविकका गा.वि.स.हरूको वडाहरूमा कम्तिमा ३ देखि ५ वटा केन्द्रबाट

घुम्ती खोप केन्द्र (Mobile clinics) : गा.पा., न.पा.को स्वास्थ्य संस्थाको पकडक्षेत्र भित्र रहेका पहुँचबाट टाढा भएका वस्ति, समुदाय र भौगोलिक क्षेत्रमा कम्तिमा वर्षको ४ पटक खोप केन्द्र स्थापना गरी खोप सेवा प्रदान गरिएको

(क) राष्ट्रिय खोप तालिका

पटक/भेट	कुन उमेरमा	कुन खोप/मात्रा	सुई लगाउने स्थान र माध्यम	कुन रोगबाट बचाउँछ?
१	जन्मने वित्तिकै	बि.सि.जि. (0.5 ml)	दायाँ पाखुराको माथिल्लो भाग छालाभित्र (Intradermal)	क्षयरोग
२	६ हप्ता	रोटा (पहिलो) (१ टिउब)	मुखमा गालाको भित्री भागमा	रोटा भाइरसबाट हुने भाडापखाला
		पोलियो (2 Drops) (पहिलो)	मुखमा	पोलियो
		एफ.आई.पि.भि. (0.1 ml) (पहिलो)	दायाँ पाखुराको माथिल्लो भाग छाला भित्र (Intradermal)	पोलियो

		पि.सि.भि. (0.5 ml) (पहिलो)	दायाँ तिघाको बीच बाहिरी भाग मासुमा	निमोनिया
		डि.पि.टि.-हेप बी.-हिव. (0.5 ml) (पहिलो)	बाँया तिघाको मध्य बाहिरी भाग मासुमा	भ्यागुते रोग लहरेखोकी, धनुष्टङ् कार हेपाटाइटिस-बी, हेमोफिलस इन्फुलुइन्जा-बी (निमोनिया)
३	१० हप्ता	रोटा (दोश्रो) (१ टिउब)	मुखमा गालाको भित्री भागमा	रोटा भाइरसबाट हुने भ्रडापखाला
		पोलियो (2 Drops) (दोश्रो)	मुखमा	पोलियो
		पि.सि.भि. (0.5 ml) (दोश्रो)	दायाँ तिघाको बीच बाहिरी भाग मासुमा	निमोनिया
		डि.पि.टि.-हेप बी.- हिव. (0.5 ml) (दोश्रो)	बाँया तिघाको मध्य बाहिरी भाग मासुमा	भ्यागुते रोग लहरेखोकी, धनुष्टङ् कार हेपाटाइटिस-बी, हेमोफिलस इन्फुलुइन्जा-बी (निमोनिया)
४	१४ हप्ता	पोलियो (2 Drops) (तेश्रो)	मुखमा	पोलियो
		एफ.आई.पि.भि. (0.1 ml) (दोश्रो)	दायाँ पाखुराको माथिल्लो भाग छाला भित्र (Intradermal)	पोलियो
		डि.पि.टि.-हेप बी.- हिव. (0.5 ml) (तेश्रो)	बाँया तिघाको मध्य बाहिरी भाग मासुमा	भ्यागुते रोग लहरेखोकी, धनुष्टङ् कार हेपाटाइटिस-बी, हेमोफिलस इन्फुलुइन्जा-बी (निमोनिया)
५	१ महिना	दादुरा-रुबेला (0.5 ml) (पहिलो)	बायाँ पाखुराको माथिल्लो भाग छाला र मासु बीच	दादुरा र रुबेला
		पि.सि.भि. (0.5 ml) (तेश्रो)	दायाँ तिघाको बीच बाहिरी भाग मासुमा	निमोनिया
६	१२ महिना	जापानिज इन्से फलाईटिस (0.5 ml)	दायाँ तिघाको माथिल्लो बाहिरी भाग छाला र मासु बीच (Subcutaneous)	जापानिज इन्सेफलाईटिस
७	१५ महिना	दादुरा-रुबेला (0.5 ml) (दोस्रो)	बायाँ पाखुराको माथिल्लो भाग छाला र मासु बीच (Subcutaneous)	दादुरा र रुबेला
८	गर्भवति महिला	टि.डि. (0.5 ml)	बायाँ पाखुराको माथिल्लो भाग मासुमा	धनुष्टङ्कार-भ्यागुते रोग

यदि माथि दिइएको तालिका अनुसार बालबालिकाहरु केहि कारणवस नियमित खोप लगाउन छुट भएका छन् भने, नेपाल सर कारले आ.व. २०७९/७८ बाट ५ वर्षसम्मका बालबालिकालाई खोप दिने तालिका सार्वजनिक गरेको छ ।

(ख) नियमित खोप तालिका अनुसार नियमित खोप छुट भएका ५ वर्षसम्मका बालबालिकालाई खोप दिने तालिका

खोप	मात्रा, सुई लगाउने स्थान र माध्यम	नियमित खोप तालिका	नियमित खोप तालिका अनुसार छुट भएको बालबालिका		
			१२ महिनासम्मको उमेर	१२ देखि २३ महिनासम्मको उमेर	२४ देखि ५९ महिनासम्मको उमेर
वि.सि.जि.	०.०५ मि.लि. दायाँ पाखुराको माथिल्लो भाग छाला भित्र (ID)	१ मात्रा : जन्मने वित्तिकै	उमेर १ वर्षसम्मको लागि ०.०५ मि.लि.	१ वर्ष वा सो भन्दा माथिको लागि ०.१ मि.लि.को एक मात्र दिने । ०.१ मि.लि. खोप दिँदा एफ.आई.पि.भि. दिने सिरिञ्ज प्रयोग गर्ने ।	
रोटा	१ ट्यूब (गालाको भित्री भाग)	२ मात्रा : ६ र १० हप्तामा	१ महिनाको फरकमा २ मात्रा दिने ।		२ वर्ष माथिका उमेर समूहकोलाई रोटा खोप दिनु हुदैन ।
पोलियो	मुखमा दुई थोपा	३ मात्रा : ६, १० र १४ हप्तामा	१ महिनाको फरकमा ३ मात्रा दिने ।		
एफ.आई.पि.भि.	०.१ मि.लि., बायाँ पाखुराको माथिल्लो भाग छाला भित्र (ID)	२ मात्रा : ६ र १४ हप्तामा	१ महिनाको फरकमा २ मात्रा दिने ।		
पि.सि.भि.	०.५ मि.लि., दायाँ तिघ्राको बीच बाहिरी भाग मासुमा (IM)	३ मात्रा : ६ हप्ता, १० हप्ता र ९ महिनामा	७ महिना मुनिको भएमा पहिलो १ महिनाको फरकमा दोस्रो मात्रा दिने र ९ महिनामा तेस्रो मात्रा दिने । ७ देखि १ महिनासम्मकोलाई १/१ महिनाको फरकमा ३ मात्रा दिने ।	२ महिनाको फरकमा २ मात्रा दिने ।	
डि.पि.टि.-हेप बी.-हिव. (पेन्टाभ्यालेण्ट)	०.५ मि.लि., बायाँ तिघ्राको बीच बाहिरी भाग मासुमा (IM)	३ मात्रा : ६, १० र १४ हप्तामा	१/१ महिनाको फरकमा ३ मात्रा दिने ।	१/१ महिनाको फरकमा २ मात्रा र दोस्रो मात्रा लगाएको ६ महिनापछि तेस्रो मात्रा दिने ।	
दादुरा-रुबेला	०.५ मि.लि., बायाँ तिघ्राको माथिल्लो बाहिरी भाग छाला र मासु बीच (SC)	२ मात्रा : ९ र १५ महिनामा	९ देखि १५ महिना मुनिको भएमा पहिलो मात्रा लगाएको कम्तिमा १ महिना फरकमा तर १५ महिनामा दोस्रो मात्रा दिने ।	१५ देखि ५९ महिनासम्मको भएमा १/१ महिनाको फरकमा २ मात्रा दिने ।	
जापनिज इन्सेफलाईटिस	०.५ मि.लि., दायाँ तिघ्राको माथिल्लो बाहिरी भाग छाला र मासु बीच (SC)	१ मात्रा : १२ महिनामा	१ मात्रा दिने ।		

नोट : छुट भएका खोपहरू दिँदा पहिले दिएका खोपका मात्रा दोहर्‍याउनु हुदैन ।

(ग) राष्ट्रिय खोप कार्यक्रममा समावेस हुने अन्य खोपहरूको संक्षिप्त जानकारी

१. ह्यूमन प्यापिलोमा भाइरस विरुद्धको खोप (Human Papilloma Virus Vaccine- HPV Vaccine)

संसारका विभिन्न देशहरूमा गरिएका अध्ययन अनुसार पाठेघरको मुखको क्यान्सरको प्रमुख कारण एच.पि.भी. नामक भाइरस हो । एच.पि.भी.(HPV) को पूर्णरूप (Human Papilloma Virus) हो । एच.पि.भी. भाइरस १०० भन्दा धेरै प्रकारका हुन्छन् । पाठेघरको मुखमा हुने क्यान्सरमध्ये ७० प्रतिशत क्यान्सर एच.पि.भी.ले गराउँछ । एच.पि.भी. भाइरस विरुद्धमा प्रयोग गरिने खोपलाई एच.पि.भी. खोप भनिन्छ । यो खोपले एच.पि.भी.को संक्रमणबाट सुरक्षित गराउँछ र दीर्घकालीन रूपमा ती महिलाको पाठेघरको मुखको क्यान्सर हुनबाट बचाउन सक्छ ।

नेपालमा शिक्षा मन्त्रालयसँगको सहकार्यमा कास्की र चितवन जिल्लामा आ.व. २०७२-७३ मा यो खोप सेवा सञ्चालन गरि एको थियो । राष्ट्रिय खोप सल्लाहाकार समितिले यो खोपलाई राष्ट्रिय खोप कार्यक्रममा समावेस गरी कक्षा ६ मा अध्ययन गर्ने छात्राहरू र विद्यालय नजाने १० वर्ष उमेरका किशोरीहरूलाई ६ महिनाको फरकमा २ मात्रा खोप दिन सिफारिस गरेको छ ।

२. टाइफाइड विरुद्धको खोप

नेपालमा टाइफाइड रोग सबै ठाउँमा व्याप्त रहेको कुरा यससम्बन्धी विभिन्न अध्ययनले देखाएको छ । यो रोग जुनसुकै उमेरका मानिसलाई हुनसक्छ तर यो रोगबाट सबैभन्दा बढी जोखिम पाँचवर्ष मुनिका बालबालिकाहरू रहेका छन् । राष्ट्रिय खोप सल्लाहाकार समितिले यो खोपलाई राष्ट्रिय खोप कार्यक्रममा समावेस गरी प्रारम्भमा १५ महिना देखि १५ वर्षसम्मका बालबालिकाहरूलाई अभियानकोरूपमा खोप सेवा प्रदान गरी तत् पश्चात का बालबालिकाहरूलाई नियमित खोप सेवा मार्फत १५ महिनामा दादुरा-रुबेला दोश्रो मात्रा संगै खोप दिन सिफारिस गरेको छ ।

(घ) ए.ई.एफ.आई. सर्भिलेन्स र ए.ई.एफ.आई.

खोप लगाएपछि हुने कुनै पनि स्वास्थ्य सम्बन्धी अनपेक्षित घटना (AEFI- Adverse Event Following Immunization) हो, जुन खोपको कारणबाट नभएको पनि हुनसक्छ । यस्ता अनपेक्षित घटनाहरू खोप लगाएपछि अप्रत्याशित चिन्ह, लक्षण, असामान्य प्रयोगशाला परीक्षण परिणाम (Abnormal Lab Test Result) वा रोगको रूपमा देखा पर्दछन् । खोप पश्चात हुने धेरैजसो अनपेक्षित घटनाहरू खोपसँग सम्बन्धित हुँदैनन् र ती घटनाहरू संयोगवस हुने घटनाहरू हुन् । यसरी खोप लगाएपछि हुनसक्ने अनपेक्षित घटनाको खोजपडताल तथा निगरानीलाई ए.ई.एफ.आई. सर्भिलेन्स भनिन्छ ।

ए.ई.एफ.आई.को प्रकार :

खोप पश्चात हुने चिन्ह, लक्षण र रोगको अवस्थाको आधारमा ए.ई.एफ.आई.लाई मुख्यगरी २ भागमा वर्गीकरण गरिन्छ : १. सामान्य प्रकारका ए.ई.एफ.आई., २. गम्भिर प्रकारका ए.ई.एफ.आई.

१. सामान्य प्रकारका ए.ई.एफ.आई. (Minor or Non-serious AEFI)

खोप लगाएपछि सुई लगाएको ठाउँमा दुख्ने, सुन्निने, रातो हुने, सामान्य ज्वरो आउने, टाउको दुख्ने, थकाई लाग्ने र आलस्य महशुस हुने, वाकवाक लाग्ने जस्ता सामान्य असरहरू हुन सक्छन् जसलाई सामान्य प्रकारका ए.ई.एफ.आई. भनिन्छ । सामान्य किसिमका ए.ई.एफ.आई.ले खोप लिने व्यक्तिको स्वास्थ्यमा गम्भिर असर पार्दैनन् र यो आफै विस्तारै ठीक हुन्छ ।

२. गम्भिर प्रकारका ए.ई.एफ.आई. (Serious AEFI)

खोप लगाएपछि हुनसक्ने गम्भिर प्रकारका ए.ई.एफ.आई. भन्नाले खोप पश्चात भएको कुनै पनि समस्याको कारणले मृत्यु हुने, ज्यानै जानसक्ने जोखिम हुने, अस्पताल लामो समयसम्म भर्ना भएर उपचार गर्नुपर्ने अवस्था हुने, अपाङ्ग वा अशक्तता हुने, जन्मजात विकङ्कता वा अपाङ्ग जन्मने जस्ता घटनाहरू पर्दछन् । तर गम्भिर प्रकारका अनपेक्षित घटनाहरू अत्यन्तै न्यून संख्यामा वा विरलै मात्र हुन्छ । ज्यानै जानसक्ने जोखिमहरूमा विशेषगरी बेहोस हुने, एनाफाइलेक्सिस वा गम्भिर प्रकारको प्रतिक्रिया देखापर्ने अवस्थालाई लिन सकिन्छ । खोप पश्चात हुने बेहोस र एनाफाइलेक्सिस को उपचार एवम् व्यवस्थापन फरक हुने भएकोले चिन्ह र लक्षणहरूको आधारमा ती अवस्था छुट्याउन जरुरी हुन्छ ।

बेहोस (Faint) र एनाफाइलेक्सिस (Anaphylaxis) छुट्याउने आधारहरू

चिन्ह र लक्षण	बेहोस (Faint)	एनाफाइलेक्सिस (Anaphylaxis)
शुरुमा देखिने	सूई देख्ने वित्तिकै, सूई लगाउँदै गर्दा वा सूई लगाउने वित्तिकै हने	खोप लगाएको ५ देखि ३० मिनेट भित्र देखिने, यद्यपि १ घण्टा वा सो भन्दा पछि पनि देखिने
छालामा देखिने	शरीर फुस्रो (Pale) हुँदै जान्छ र शरीर हुँदै जाने	सूई लगाएको भागमा वरिपरी रातो हुने, सुनिने, अनुहार सुनिने, आँखा सुनिने
शवास प्रशवासमा	सामान्य वा लामो-लामो सास फेर्ने	खोकी लाग्ने, सास फेर्न गाह्रो हुने, सास फेर्दा घ्यार-घ्यार वा स्वाँ स्वाँ आवाज आउने, सास फेर्न गाह्रो भएर हात र खुट्टा निलो हुने
रक्त सञ्चारमा	मुटुको धडकन कम हुने, रक्तचाप कम हुने, तर यस प्रकारको चिन्ह क्षणिक हुने र उत्तानो पारेर सुत्दा ठीक हुने	मुटुको धडकन बढ्ने र रक्तचाप कम हुने
पाचन प्रणालीमा	वाकवाकी लाग्नु, वान्ता हुने	पेट वाउडिने, पेट दुख्ने, वाकवाकी लाग्ने, वान्ता हुने
स्नायु प्रणालीमा	क्षणिक बेहोस हुने, उत्तानो पारेर सुताएपछि वा टाउको तल पारेर सुताएपछि होसमा आउने हात खुट्टामा झटका आएजस्तो हुने र आँखा पल्टाउने जस्ता लक्षण देखिने जुन कम्पन आउँदा जस्तो देखिने तर यो कम्पन भने होइन ।	धेरै चिन्ता, डर र गाह्रो भएजस्तो हुने, पूरै बेहोस हुने, उत्तानो वा टाउको तल पारेर सुताउदा पनि कुनै किसिमको प्रतिक्रिया नदिने

एनाफाइलेक्सिसको उपचार तथा व्यवस्थापन

- प्रथमिक उपचार गर्नको लागि अन्य स्वास्थ्यकर्मी वा स्वयंसेवकहरूको सहयोग लिने ।
- विरामीलाई उत्तानो पारेर सुताएर राख्ने जसमा खुट्टा मथि र टाउको तल हुने गरी राख्ने ।
- स्वास प्रशवास मार्ग सफा गर्ने वा सफा भएको एकिन गर्ने (Clear Airway) ।
- विरामीलाई न्यानो पारेर राख्ने ।
- विरामीको स्वास प्रशवास मार्ग, स्वास-प्रशवासको अवस्था र मुटुको धडकन (ABC: Airway, Breathing and Circulation) जाँच गर्ने ।
- आवश्यक भएमा CPR (Cardiopulmonary Resuscitation) शुरु गर्ने ।
- प्रारम्भिक उपचार गर्ने
 - Injection Adrenaline (1:1000 Solution, 1 mg/ml) मासुमा (IM) दिने,
 - विरामीको अवस्थामा सुधार नभएमा वा लक्षणहरू त्यस्तै रहेमा बमचभलवप्लिभ को मात्रा ५ देखि १५ मिनेटको फरकमा ३ पटकसम्म दिने । तर एक पटकमा ०.५ मि.लि भन्दा धेरै नदिने ।
- विरामीको प्रारम्भिक उपचारपछि विरामीको अवस्था स्थिर भइसकेपछि विरामीलाई तोकिएको प्रेषण केन्द्रमा प्रेषण गर्ने ।
- खोप कार्डमा ए.ई.एफ.आई. भएको वारे प्रष्टसँग उल्लेख गर्ने ।
- खोप दिने स्वास्थ्यकर्मीले तत्काल स्वास्थ्य संस्था प्रमुख, नगरपालिका स्वास्थ्य शाखा प्रमुख र जिल्ला स्थित स्वास्थ्य कार्यालय प्रमुखलाई जानकारी दिने ।

उमेर अनुसार बमचभलबल्लिभ (1:1000 Solution, 1 mg/ml) को मात्रा

- ९ महिना देखि २३ महिनासम्मको बच्चालाई : ०.१० मि.लि.
- २४ महिना देखि ४७ महिनासम्मको बच्चालाई : ०.१५ मि.लि.
- ४८ महिना देखि ५९ महिनासम्मको बच्चालाई : ०.२० मि.लि.

ध्यान दिनुपर्ने कुराहरु

- एड्रिनलिन सूई थोरै मात्रामा दिनुपर्ने हुँदा उपयुक्त प्रकारको सिरिञ्जको प्रयोग गर्नुपर्छ ।
- सिरिञ्जको प्रयोग गर्दा ठीक मात्रा दिन सकियोस् भन्नाको लागि १ मि.लि.को सिरिञ्ज प्रयोग गर्नु पर्छ जसमा १० ठुला धर्का (प्रति ठुलो धर्का बराबर ०.१ मि.लि.) र १०० सानो धर्का (प्रति सानो धर्का बराबर ०.०१ मि. लि.) हुन्छन् ।
- एड्रिनलिनको मात्रा एक उपचार अबधिमा तीन पटकभन्दा बढि दिनु हुदैन ।

ए.ई.एफ.आई.को प्रतिवेदन**(क) सामान्य प्रकारको ए.ई.एफ.आई.को लागि**

- नियमित खोप सेवाको क्रम भएको भए, स्वास्थ्य संस्थाको मासिक प्रतिवेदनमा उल्लेख गर्ने ।
- अभियानको क्रममा भएको भए, ट्याली सिट र प्रगति प्रतिवेदनमा संख्या उल्लेख गर्ने ।

निमित्त प्रतिवेदनमा समेट्नु पर्ने ए.ई.एफ.आई.हरू :

- खोप दिएको शरीरको भागमा कडा किसिमको प्रतिक्रिया देखिएमा ।
- खोप दिएको शरीरको भागमा घाउ भएमा वा पिप जमेको भएमा ।
- बी.सी.जी. खोप लगाएपछि काखी वरीपरी गाँठा-गुँठी सुनिएको भएमा वा घाउ भएमा ।
- शारीरिक लुलोपना र तातो, चिसो, छोएको कम थाहा भएमा (Hypotonic, Hyporesponsive Episode)
- तुरुन्त प्रतिवेदन गर्नुपर्ने प्रकारका ए.ई.एफ.आई.हरू

(ख) गम्भिर प्रकारको ए.ई.एफ.आई.को लागि

- ए.ई.एफ.आई. भएको २४ घण्टा भित्र विस्तृत विवरण सहित प्रतिवेदन पठाउने (तोकिएको फारममा उल्लेखित विवरण सबै भन्नुपर्ने)

२४ घण्टाभित्र प्रतिवेदन गर्नुपर्ने ए.ई.एफ.आई.हरू :

- स्वास्थ्यकर्मी वा/र जनसमुदायले खोपको कारणबाट नै मृत्यु वा जीवन नै जोखिमपूर्ण अवस्थामा पुगेको (जस्तै: एनाफाइलेक्सिस, अचेत अवस्था हुनु, स्नायुप्रणालीसँग सम्बन्धित अन्य गम्भिर असरहरु देखिनु आदि) भन्ने विश्वास गरेको ए.ई.एफ.आई. भएमा,
- स्वास्थ्यकर्मी वा/र जनसमुदायले खोपको कारणबाट नै विरामी भई अस्पतालमा भर्ना भई उपचार गरिएको हो भन्ने विश्वास गरेमा,
- स्वास्थ्यकर्मी वा/र जनसमुदायले गर्भवती छँदा दिइएको खोपको कारणबाट जन्मजात विकलाङ्ग बच्चा जन्मिको विश्वास गरेमा,
- एकै ठाउँमा धेरै संख्यामा सामान्य प्रकारका ए.ई.एफ.आई. देखा परेमा ।
- स्वास्थ्यकर्मी वा/र जनसमुदायले खोपको कारणबाट नै निम्न किसिमका कडा किसिमका असामान्य घटनाहरू भएको हो भन्ने विश्वास गरेमा ।

नोट:

जिल्ला स्थित स्वास्थ्य कार्यालयको AEFI Investigation Team ले ए.ई.एफ.आई.को अनुसन्धान गरेर त्यसको प्रतिवेदन परिवार कल्याण महाशाखामा पेश गर्नुपर्दछ । यसैको आधारमा हरेक गम्भिर प्रकारको ए.ई.एफ.आई.को थप अनुसन्धान राष्ट्रियस्तर मा गठित ए.ई.एफ.आई. समितिबाट हुन्छ ।

ए.ई.एफ.आई.का कारणहरू

कारणहरू	परिभाषा
खोप उत्पादनसँग सम्बन्धित प्रतिक्रिया (Vaccine product related reaction)	भ्याक्सिन उत्पादन गर्दा खोपमा निहित तत्व (inherent properties) को कारणबाट उत्पन्न हुने अनपेक्षित घटना । नोट : सबै भ्याक्सिनहरू सुरक्षित हुन्छन् तर खोपमा निहित गुणले गर्दा कहिले काँही अनपेक्षित घटना हुने सम्भावना हुन्छ । जस्तै- एनाफाइलाक्सिस
खोपको गुणस्तरसँग सम्बन्धित प्रतिक्रिया (Vaccine quality defect related reaction)	उत्पादकले खोप र खोप दिन प्रयोग गर्ने सामग्रीको उत्पादन, भण्डारण र ढुवानी गर्दा हुने त्रुटीको कारणबाट हुने अनपेक्षित घटना । जस्तै- गुणस्तरमा कमी भएको खोप, विग्रिको खोप, संक्रमित/दुषित भएको सामग्रीको प्रयोग । नोट : खोपको रङ परिवर्तन भएको, जमेर विग्रने खोप जमेको, ढुसी जमेको, घोल्ने खोप राम्रोसँग नघुलिने भएको, घोलकमा ढुसी देखिएको, सिरिञ्ज निडिल दुषित भएको शंका लागेको, सिरिञ्ज निडिलको खोल च्यातिएको भएमा प्रयोग गर्नु हुदैन ।
खोप कार्यक्रम सञ्चालनको क्रममा हुने त्रुटिबाट हुने प्रतिक्रिया (Immunization error related reaction)	खोप भण्डारण र ढुवानी, घोल्ने र सिरिञ्जमा निकाल्ने तथा लगाउने प्रक्रियामा हुने त्रुटिबाट उत्पन्न हुने अनपेक्षित घटना । जस्तै- खोप लगाएको केही घण्टाभित्र ज्वरो आउने, वान्ता हुने र पातलो दिशा हुने, शिथिल हुने, अर्धचेत हुने र अचेत अवस्थामा जाने, सुई दिएको ठाँउमा सुन्निने, पाक्ने, आदि । नोट : खोप भण्डारण र ढुवानी, घोल्ने र सिरिञ्जमा निकाल्दा सावधानी अपनाएर र खोप लगाउँदा सुरक्षित सूईका नियमलाई अनिवार्य रूपमा पालना गरेर यस प्रकारको घटनालाई शून्यमा ल्याउनु पर्दछ ।
सुई प्रतिको डर, चिन्ता (Immunization anxiety related reaction)	खोप प्रतिको डर वा सूईको डर, चिन्ताबाट उत्पन्न हुने प्रतिक्रिया स्वरूप हुने अनपेक्षित घटना । यस प्रकारको घटना खोप नदिँदै वा दिँदा दिँदै तत्काल वेहोस हुने वा बेहोस भएको जस्तो हुने देखिन्छ । यस प्रकारका घटनाहरू न्यून संख्या मात्र देखिन्छन् । नोट : खोप सेवा प्रदान गर्दा खोपको महत्व र खोप लगाएपछि हुनसक्ने सामान्य असर वारे खोप लिने व्यक्ति र अभिभावकलाई राम्रोसँग परामर्श दिनु पर्दछ । खोप दिने स्थान सफा, खुल्ला र सेवाग्राहीलाई पर्खने, आरम गर्ने स्थानको व्यवस्था गर्नु पर्दछ । साथै खोप लगाएपछि सेवाग्राहीलाई आधा घण्टा बस्न लगाउनु पर्दछ । यदि कुनै व्यक्ति चिन्तित र आत्तिको जस्तो भएमा विशेष निगरानी गर्नु पर्दछ ।
संयोगवस हुने घटना (Co-incident event)	खोपको कारणले नभई संयोगवश हुने घटना । जस्तै- खोप लगाएपछि निमोनिया हुने वा अन्य कुनै विरामी पर्ने । नोट : खोप लिने व्यक्तिलाई पहिले नै रोगको संक्रमण भएको हुन सक्छ तर त्यसको चिन्ह र लक्षण खोप लगाएको केही समयपछि देखिने बेला परेको हुनसक्छ ।

माथि उल्लेखित कारणहरू र देखापर्ने अनपेक्षित घटनाहरूमध्ये धेरैजसो घटनाहरू सामान्य प्रकारका हुन्छन् र ती आफैँ ठीक हुन्छन् वा सामान्य उपचारबाट निको हुन्छन् । तर बिरलै हुने र भईहालेमा ज्यानै जोखिममा पर्ने कडा घटना जस्तै- एनाफाइलेक्सिस पनि हुनसक्छ । त्यसैले खोपदिने स्वास्थ्यकर्मीले एनाफाइलेक्सिसको पहिचान र तत्काल उपचार एवम् व्यवस्थापन वारे पर्याप्त ज्ञान र सीप हासिल गरेको हुनुपर्छ र खोप केन्द्रसम्म ए.ई.एफ.आई. किट राखिएको हुनुपर्दछ ।

(ड) कोल्ड चैन तथा खोप व्यवस्थापनसम्बन्धी केही आधारभूत जानकारी

- सबै खोपहरू सूर्यको प्रकाश र तापबाट विग्रिन्छन् ।
- केही खोपहरू धेरै चिसो (०० से. भन्दा कम तापक्रम)मा जम्छन् र विग्रिन्छन् ।
- धेरै चिसोबाट विग्रिने खोपहरू डि.पि.टी.-हेपबि.-हिव, पि.सि.भि., एफ.आई.पि.भि, रोटा, टि.डी. हुन् ।
- जमेर विग्रने खोपहरू एक पटक जमेपछि सधैँको लागि विग्रिन्छन् ।
- कुनै खोप तातोबाट छिटो विग्रिन्छन् भने कुनै खोप तातोबाट ढिलो विग्रिन्छन् ।
- तातोबाट खोप विग्रिएको छ कि छैन भनी थाहा पाउनको लागि खोपको भायलको लेबलमा भि.भि.एम. (VVM: Vaccine Vial Monitor) राखिएको हुन्छ ।
- नियमित खोप सेवामा प्रयोग हुने सबै खोप भि.भि.एम.भएको नै प्रयोग गरिन्छ ।
- जिल्ला स्थित स्वास्थ्य कार्यालय, स्वास्थ्य संस्था र खोप केन्द्रमा सबै प्रकारका खोपहरू सामान्यतया: एउटै तापक्रम (२° से. देखि ८° से.) कायम हुने गरी भण्डारण र ढुवानी गरिन्छ ।
- प्रदेशस्तरीय खोप भण्डारबाट जिल्ला स्थित खोप भण्डारमा, त्यसपछि स्वास्थ्य संस्था र खोप केन्द्रमा खोप ढुवानी गर्दा कोल्ड बक्स वा भ्याक्सिन क्यारियर प्रयोग गरिन्छ ।
- कोल्ड बक्स वा भ्याक्सिन क्यारियरमा खोप ढुवानी गर्दा आइस प्याक राखिएको हुन्छ ।
- पूरै जमेको आइस प्याक राख्दा तापक्रम ०° से. भन्दा कम तापक्रम हुन्छ, जसले गर्दा जमेर विग्रने खोप विग्रिन्छन् । यसको लागि आइस प्याकलाई कण्डिसनिङ्ग गर्नुपर्छ ।
- आइस प्याकलाई कण्डिसनिङ्ग गर्न जमेको आइस प्याकलाई फ्रिजबाट निकालेर केही समयसम्म बाहिरी वातावरणमा राखेर पगिलन दिनुपर्छ ।
- आइस प्याकलाई हल्लाउँदा भित्र पानीका आवाज सुनिएमा कण्डिसनिङ्ग भएको बुझ्नुपर्छ । आइस प्याक भित्र पानी र बरफका टुक्रा हुनु भनेको २° से. देखि ८° से. तापक्रम रहेको छ भन्ने हो ।
- कोल्ड बक्स वा भ्याक्सिन क्यारियरमा खोप ढुवानी गर्दा सधैँ नै कण्डिसनिङ्ग गरेको आइस प्याक मात्र प्रयोग गर्नुपर्छ । पूरै जमेको आइस प्याक राख्दा तापक्रम ०° से. भन्दा कम तापक्रम हुन्छ, जसले गर्दा जमेर विग्रने खोप विग्रिन्छन् ।

(च) खोपजन्य फोहर-मैलाको विसर्जन

खोपजन्य फोहर-मैला भन्नाले खोप सेवासँग सम्बन्धित फोहरलाई बुझाउँछ । जस्तै- खोपको भायल, घोलकको एम्पुल वा भायल, खोपको ट्यूब र ढकनी, सिरिञ्ज र निडिल, निडिल छोपेको क्याप, सिरिञ्ज निडिल प्याक गरेको खोल, खोप, घोलक र सिरिञ्ज निडिल प्याक गरेको बक्स, खोप लगाएपछि प्रयोग हुने कपास, प्रयोगमा नआउने फ्रिज, रेफिजेरेटर, कोल्ड बक्स, भ्याक्सिन क्यारियर ।

यस प्रकारका फोहरलाई स्वास्थ्य सेवाजन्य अन्य फोहर-मैलालाई जस्तै तोकिएको उपयुक्त विधिबाट विसर्जन गर्नुपर्छ । खोप सेवामा प्रयोग गरिएका सिरिञ्ज निडिलहरू सेफ्टी बक्समा संकलन गरेर स्वास्थ्य संस्थामा ल्याएर विसर्जन गर्नुपर्दछ । पाँच लिटर क्षमताको एउटा सेफ्टी बक्समा बढीमा १०० वटासम्म सिरिञ्ज निडिल राख्न सकिन्छ । पातलो बस्ती भएका, दुर्गम पहाडी वा हिमाली भेगको सन्दर्भमा एउटा सेफ्टी बक्समा १०० भन्दा कम सिरिञ्ज निडिल संकलन गरिएको अवस्थामा पनि महिनाको अन्त्यमा उक्त सेफ्टी बक्समा विसर्जन गर्न सकिन्छ ।

2. CASE SURVEILLANCE FOR VACCINE PREVENTABLE DISEASES

WHO programme for Immunization Preventable Diseases (IPD)- Nepal, in collaboration with Family Welfare Division (FWD), is doing surveillance of vaccine preventable diseases (VPD)- Measles, Rubella, Poliomyelitis, Japanese encephalitis and Neonatal Tetanus (NT).

Stool sample, CSF sample, Serum collection done only with WHO' guidance, not covered by BHS.

Vaccine Preventable Diseases (VPD)	Surveillance case definition	Key Surveillance methods
Measles and Rubella	Suspected measles: Any person with fever and maculopapular rash or any person in whom a clinician suspects Measles.	<ul style="list-style-type: none"> • Report immediately to nearby health institutions/ WHO IPD field office. • Collect blood at first contact/visit. • Collect blood in a tube that does not contain any chemicals or anticoagulants. • Collect 5ml of whole blood for older children and adults and 1ml for small children. • Prepare serum from collected blood, transfer serum in cold box, maintaining temperature of 2-8-degree temperature, as soon as possible
Poliomyelitis	Acute Flaccid Paralysis (AFP): Sudden onset of weakness and floppiness in any part of the body in a child < 15 years of age or paralysis in a person of any age in which polio is suspected. <i>This excludes adults, spastic paralysis, cases with obvious causes (trauma).</i>	<ul style="list-style-type: none"> • Report immediately to nearby health institution/ WHO IPD field office. • Stool specimens are collected from each AFP case within 14 days of paralysis onset ideally but can also be done up to 60 days. • Specimens are taken at least 24 hours apart. • Each stool specimen should be at least 8 grams. (approximately the size of an adult thumb) • Keep stool specimen in specimen carrier box with ice packs. • Specimens will be forwarded to the Polio reference lab (Bangkok) by surveillance unit for culture

Japanese Encephalitis (JE)	Acute encephalitis syndrome (AES): Clinically, a case of acute encephalitis syndrome (AES) is defined as a person of any age, at any time of year, with the acute onset of fever and a change in mental status (including symptoms such as confusion, disorientation, coma, or inability to talk) AND/OR new onset of seizures (excluding simple febrile seizures).	<ul style="list-style-type: none"> • Report immediately to nearby health institution/ WHO IPD field office. • First specimens (blood and CSF) should be collected on admission to hospital or when patient first seen. • As JE IgM may take up 10 days to develop after onset of symptoms, a second serum sample should be collected on the 10th day of illness onset or at the time of discharge. • Sample should be stored and transported to lab maintaining proper cold chain. • Sample should be tested for malaria plasmodium at the hospital.
Neonatal Tetanus (NT)	Suspected neonatal tetanus: Any neonatal death between 3-28 days of age in which the cause is unknown or any neonate reported as having suffered from NT between 3-28 days of age and not investigated.	<ul style="list-style-type: none"> • Report immediately to nearby health institution/ WHO IPD field office. • No sample collection is needed. • Diagnosis of neonatal tetanus is entirely clinical through verbal autopsy. • Case Investigation Form (CIF) is filled up to come to clinical diagnosis.

INTEGRATED MANAGEMENT OF NEONATAL AND CHILDHOOD ILLNESS

IMNCI materials (Ministry of Health and Population (MoHP)), are for use by paramedics, nurses and doctors who see children aged under five years. They facilitate the case management process and the charts describe the sequence of all case management steps. The chart booklet should be used by all health professionals providing care to sick children during the process of clinical care.

The Chapter is divided into two main parts:

1. Sick young infant aged up to two months
2. Sick child aged two months to five years

Chapter Outlines:

1. Children aged less than two months: Immediate newborn care, Head-to-toe examination, Management of birth asphyxia, Neonatal resuscitation, Convulsion management, Prematurity and low birth weight, Bacterial infection and classification, Jaundice, Hypothermia, Dehydration, Breastfeeding and feeding problems, Drug dosage (ampicillin, gentamicin, amoxicillin), Follow-up care
2. Children aged two months to five years: Triage of sick children, Pneumonia classification, Dehydration and diarrhoea, Malaria, Ear infections, Anaemia, Malnutrition, Immunisation status, Prevention of Mother-to-child Transmission (PMTCT), Drug dosage (amoxicillin, ciprofloxacin, erythromycin, cotrimoxazole, antimalarial, vitamin A & iron, albendazole, diazepam), Hypoglycaemia assessment and management, Classification of dehydration and management, Follow-up care

IMNCI clinical guidelines are based on the Principle of Integrated Case Management

All sick children up to five years of age are assessed for general danger signs and all young infants for signs of very severe disease. These signs indicate severe illness and the need for immediate referral or admission to hospital.

The children and infants are then assessed for main symptoms:

In older children (2–59 months) the main symptoms include:

- Cough or difficulty breathing
- Diarrhoea
- Fever
- Ear infection

In young infants (0–2 months), the main symptoms include:

- Symptoms of possible severe bacterial infection and hypothermia
- Diarrhoea and jaundice

All sick children are also routinely checked for:

- Nutritional and immunisation status
- Other potential problems

A combination of individual signs leads to a child's classification within one or more symptom groups rather than a diagnosis. The classification of illness is based on a colour-coded triage system:

- “RED” indicates urgent referral to a higher centre
- “YELLOW” indicates initiation of specific outpatient treatment
- “GREEN” indicates supportive home care

IMNCI management procedures use a limited number of essential drugs and encourage the active participation of caregivers in the treatment of their children

An essential component of IMNCI is the counselling of caregivers regarding home care:

- Appropriate feeding and fluids
- When to return to the clinic immediately
- When to return for follow-up

1. MANAGEMENT OF CHILDREN UNDER 2 MONTHS

(दुई महिना सम्मका शिशुको व्यवस्थापन)

Immediate Newborn Care:

Most babies will require routine care; 5–10% may need assistance to establish adequate breathing and therefore will need resuscitation. Immediately after delivery, dry the baby with a pre-warmed cloth and assess whether baby is breathing or crying; if yes proceed with routine newborn care.

Routine newborn care after birth includes:

- Place the baby on the mother's abdomen
- Dry the baby with a warm clean sheet. Do not wipe off vernix
- Clamp the cord after one to three minutes and cut with a sterile instrument
- Tie the cord with a sterile tie/cord clamp
- Leave the baby between the mother's breasts to start skin-to-skin care.
- Support initiation of breastfeeding as soon as possible (within one hour)
 - o Assist for good positioning, attachment and effective suckling
 - o If needed, assist for expression of breast milk
- Apply 4% Chlorhexidine (CHX) gel over umbilical stump wearing gloves
- Cover the baby's head with a cloth. Cover the mother and baby with a warm cloth
- Determine the sex and place an identity label on the baby
- Give Inj Vitamin K1 1mg IM (0.5mg for <1,000g baby and 1mg for the rest)
- Record the baby's weight
- Quick examination for malformation/birth injury

Monitor the baby:

- Monitor baby every 15 minutes for next one hour and every 30 minutes for next six hours (more frequently if needed).
- Monitor for Breathing, grunting, chest indrawing, fast breathing, Heart Rate, colour, warmth, bleeding from the cord.

Use of 4% CHX gel (Navi Malam) to prevent neonatal infection. Cord care:

- Apply CHX immediately after cord-cutting; a single application is adequate, using all the gel in the tube
- Use the sharp protuberance on the lid to break the inner shield of the tube
- Wash hands properly with soap and water before application of CHX
- Apply 4% CHX gel on the stump and the surrounding areas of the cord
- Spread the gel gently on the stump and surrounding areas using the index finger
- After applying CHX gel, apply nothing on the cord and keep the cord clean and dry.

After providing immediate newborn care

- Write records of newborn and immediate newborn care.
- Report to an appropriate person and explain finding to mother and family (normal and abnormal findings).

शिशुको पुरा शरीरको जाँच (Head to toe Examination)

भखरै जन्मेको शिशुलाई घर पठाउन भन्दा पहिले शिशुको शिरदेखि पाउ सम्म जाच गर्नु पर्दछ र अर्को भेटमा पनि यस्तो प्रकारको जाच गर्नु पर्दछ । शिशुको पुरा शरीरको जाच गर्दा निम्नानुसारको चरणहरु पालना गर्नुपर्दछ :

- (१) शिशुको जाँच गर्ने स्वास्थ्यकर्मीले आफ्नो हात साबुन पानीले राम्ररी धुनुहोस (६ चरण अपनाएर) र सुक्खा बनाउनुहोस ।
- (२) सम्भव भएसम्म शिशुलाई आमाको काखमा राखेर जाच गर्नुहोस । यदि शिशुलाई त्यसरी जाच गर्ने सम्भव छैन भने, शिशुलाई बिरामी जाचन टेबल वा बेडमा राखेर जाच गर्नुहोस । यसरी जाच गर्दा टेबल वा बेडमा सफा र नरम कपडा बिछ्याउन पर्दछ र आमालाई पनि नजिक राख्न पर्दछ ।
- (३) शिशुलाई जाच्ने बेलामा आफुले के गर्न लागे रहेको भन्ने कुरा आमा तथा अरु अभिभावकसंग भएमा निजलाइ बताउनुहोस र उनीहरुले सोधको प्रश्नहरुको उत्तर दिनुहोस ।
- (४) शिशुलाई जाच गर्दा विस्तारै चलाउनुहोस ।
- (५) शिशु शान्त भएको अवस्थामा पुरै १ मिनेट लगाएर शिशुको श्वास-प्रश्वास दर गन्ति गर्नुहोस । यदि सामान्य अवस्थामा भन्दा बढी श्वासप्रश्वास दर भएमा एक पटक दोहोर्‍याएर गन्ति गर्नुहोस । (याद गर्नुहोस, नवजात शिशुको श्वासप्रश्वास दर प्रति मिनेट ६० वा सा भन्दा बढी भएमा सामान्य अवस्थामा भन्दा बढी भएको हो भन्ने कुरा बहनु पर्दछ ।
- (६) शिशुको जिब्रो र ओठको रङ्ग निलो (cyanosis) भएको छ कि छैन भनेर हेर्नुहोस ।
- (७) शिशुको शरीरको ढाँचा कस्तो छ भनी हेर्नुहोस । याद गर्नुहोस, सामान्य अवस्थाको शिशुले हात, खट्टा खुम्च्याएका हुन्छ ।
- (८) शिशुलाई विस्तारै छुनुहोस र शिशुको मुटुको (गति) धडकन पुरै एक मिनेट लगाएर गन्ति गर्नुहोस । याद गर्नुहोस, सामान्य अवस्थामा शिशुको मुटुको धडकन एक मिनेटमा १०० देखि १६० सम्म हुनसक्छ ।

- (९) काखीमा थर्मोमिटर राखेर शिशुको शरीरको तापक्रम लिनुहोस । याद गर्नुहोस, शिशुको शरीरको सामान्य तापक्रम ३६.५० देखि ३७.५० सेण्टीग्रेड हो । थर्मोमिटर उपलब्ध छैन भने मात्र हत्केलाको पछ्याडिको भागेल शिशुको पेट र देब्रे खुट्टा -तल्लो भाग) छामेर शिशुको शरीरको तापक्रम अनुमान गर्नुहोस ।
- (१०) शिशुको छालामा हेर्नुहोस र निम्न कुराहरुका अवलोकन गर्नुहोस :
- (क) छालाका रङ्ग गुलाबी छ कि सेतो छ ? (ख) कमलपित्त (जण्डिस) देखिएको छ कि छैन ? (ग) शरीरका कुनै भागमा पानी भरिएको वा पिप भएको फोकाहरु छन् कि छैनन् ? (घ) शरीरका कुनै भागमा मसिना विमिराहरु छन् कि छैनन् ? (ङ) छालामा अन्य कुनै समस्या छ कि छैन ?
- (११) शिशुको टाउको हेर्नुहोस र हातले छामेर निम्न कुराहरुको अवलोकन गर्नुहोस : (क) टाउकोको कुनै भागसुन्निएको (molding) छ कि छैन ? (ख) टाउकोको कुनै भाग केही माथि उठेको (caput) छ कि छैन, anterior fontanelle सामान्य (च्याप्टो) छ वा माथि उठेको छ?
- (१२) शिशुको आखा हेर्नुहोस र निम्न कुराहरुको अवलोकन गर्नुहोस : आँखाको आकार, बनावटमा कुनै असामान्य छ कि छैन ? आँखाको नानीमा सेतापना छ कि हेर्नुहोस । आँखाबाट पिप, रगत वा पानी बगेको छ कि छैन ?
- (१३) शिशुको मुखभित्र हेर्नुहोस र हातले छामेर र निम्न कुराहरुको अवलोकन गर्नुहोस : (क) दुबै ओठ कस्ता छन् ? ओठ खोडे (cleft lip) छ कि छैन ? (ख) गिजा कस्ता छन् ? ओठ खोडे भएमा गिजा पनि काटिएको छ कि छैन ? (ग) मुख भित्रको तालु कस्तो छ ? तालु काटिएको (cleft palate) छ कि छैन ? (घ) जिब्रोको अवस्था सामान्य छ कि छैन ?
- (१४) शिशुको छाति हेर्नुहोस र निम्न कुराहरुको अवलोकन गर्नुहोस : शिशुले सास फेर्दा दुबैतर्फको छाति एकै किसिमले भित्र जाने, बाहिर आउने हुन्छ कि फरक/फरक किसिमले हुन्छ ? छातिमा अरु कुनै असामान्य अवस्था छ कि छैन ?
- (१५) शिशुको पेट हेर्नुहोस र हातले छामेर र निम्न कुराहरुको अवलोकन गर्नुहोस : पेटभित्रका अंगहरु कलेजो, फियो, मृगौला सुन्नीएको छ कि छैन ?
- (१६) शिशुको नाभि हेर्नुहोस र निम्न कुराहरुको अवलोकन गर्नुहोस : (क) नाभिबाट रगत बगेको छ कि छैन ? (ख) नाभिबाट पिप वा पानी बगेको छ कि छैन ? (ग) नाभिको वरिपरि पेटमा रातोपन भएको छ कि छैन ?
- (१७) शिशुको मलद्वार (दिसा गर्ने प्वाल) हेरेर प्वाल सामान्य किसिमको छ कि छैन ? (तर मलद्वार हेर्नका लागि प्वाल भित्र कुनै किसिमको औजार वा अँला घुसाउन हुदैन):
- (१८) बाहिरबाट देखिने प्रजनन अङ्गहरु हेर्नुहोस
- शिशु छोरी हो भने, निम्न कुराहरु हेर्नुहोस : योनीका प्वाल छ कि छैन ?, योनीबाट सेतो जस्तो तरल पदार्थ बाहिर बगेको छ कि छैन ? योनीबाट रगत जस्तो तरल पदार्थ बाहिर बगेको छ कि छैन ? (नवजात शिशुको योनीबाट सेतो तरल पदार्थ र रगत जस्तो तरल पदार्थ बग्नु सामान्य नै हो र यो कुरा जन्मेको दोस्रा वा तेस्रो दिनमा शुरु भएर ७ दिनसम्म हुन सक्छ ।)
 - शिशु छोरा हो भने, निम्न कुराहरु हेर्नुहोस: (क) लिङ्गको टुप्पोमा प्वाल छ कि छैन ? (ख) लिङ्गको टुप्पोमा हुने प्वाल टुप्पोमा नभएर अरु कतै छ कि ? (ग) विस्तारै अण्डकोष छामेर अण्डकोष भित्र दुइवटा अण्ड छन् कि एउटा मात्र छ ? हेर्नुहोस ।

- (१९) शिशुको दुबै हात हेर्नुहोस (विस्तारै आफ्नो हातले चलाएर पनि हेर्नुहोस) र निम्न कुराहरुको अवलोकन गर्नुहोस :
- (क) दुबै हात चल्छन कि चल्दैनन ? वा कुनै एउटा हात मात्र चल्दैन कि ?
- (ख) दुबै हातमा वा एउटा हातमा कुनै असामान्य कुरा (जस्तै पाचवटा भन्दा बढी वा कम औलाहरु) देखिएको छ कि छैन ?
- (२०) शिशुको दुबै खुट्टा हेर्नुहोस (विस्तारै आफ्नो हातले चलाएर पनि हेर्नुहोस) र निम्न कुराहरुको अवलोकन गर्नुहोस :
- (क) दुबै खुट्टा चल्छन कि चल्दैनन ? वा कुनै एउटा मात्र खुट्टा चल्दैन कि ?
- (ख) दुबै खुट्टामा वा एउटा खुट्टामा कुनै असामान्य कुरा देखिएको छ कि छैन ?
- (२१) शिशुलाई पछाडि फर्काएर वा कोल्टे पारेर शिशुको ढाड र मेरुदण्ड हेरेर निम्न कुराहरु अवलोकन गर्नुहोस
- (क) मेरुदण्डको कुनै भागमा सुन्निएको छ कि ?
- (ख) मेरुदण्डको तल्लो भागतिर कतै प्वाल छ कि वा अस्वभाविक कपालको भुष्पो छ कि ?
- (२२) शिशुको तौल लिनहोस ? (शिशुको सामान्य जन्म तौल २.५ देखि ४.० के.जि. हो ।)
- (२३) आमालाई स्तनपान गराउन भन्नुहोस र शिशुले ठीकसंग आमको दुध चुसेको छ कि छैन अवलोकन गर्नुहोस ?
- (२४) शिशुले लगाएका कपडा राम्रोसँग मिलाइदिएर आमालाई दिनुहोस वा शिशुलाई कपडाले बेरेर आमाको नजिक राखी दिनुहोस ।
- (२५) शिशुको जाँच गर्दा देखिएका सबै कुराहरुको अभिलेख राख्नुहोस् ।
- (२६) आफ्नो हात साबुन पानीले राम्ररी धनुहोस् (६ चरण अपनाई)

Advise:

If everything is normal while discharging from health care institution, inform to observe dangers signs and to follow up if danger sign (s) identified, and inform PNC visit schedule.

Management of Birth Asphyxia:

Most babies are born with a good cry at birth and start to breathe vigorously on their own. Few babies experiences difficulty in crying and do not breath normally. Those babies who do not cry or breathe, or whose cry and breath are weak, need help. This condition is called birth asphyxia.

Diagnostic features

- Baby does not cry
- Gaspings or slow or absent breathing at birth
- Blue discoloration of the lips, ear lobules and nails
- HR less than or about 100 per minute within 60s
- Limp or flaccid

Management: These babies need immediate Newborn Resuscitation.

Ventilation corrective steps
 M-mask reposition
 R-reposition airway
 S-suction mouth and nose
 O-open mouth
 P-increase pressure

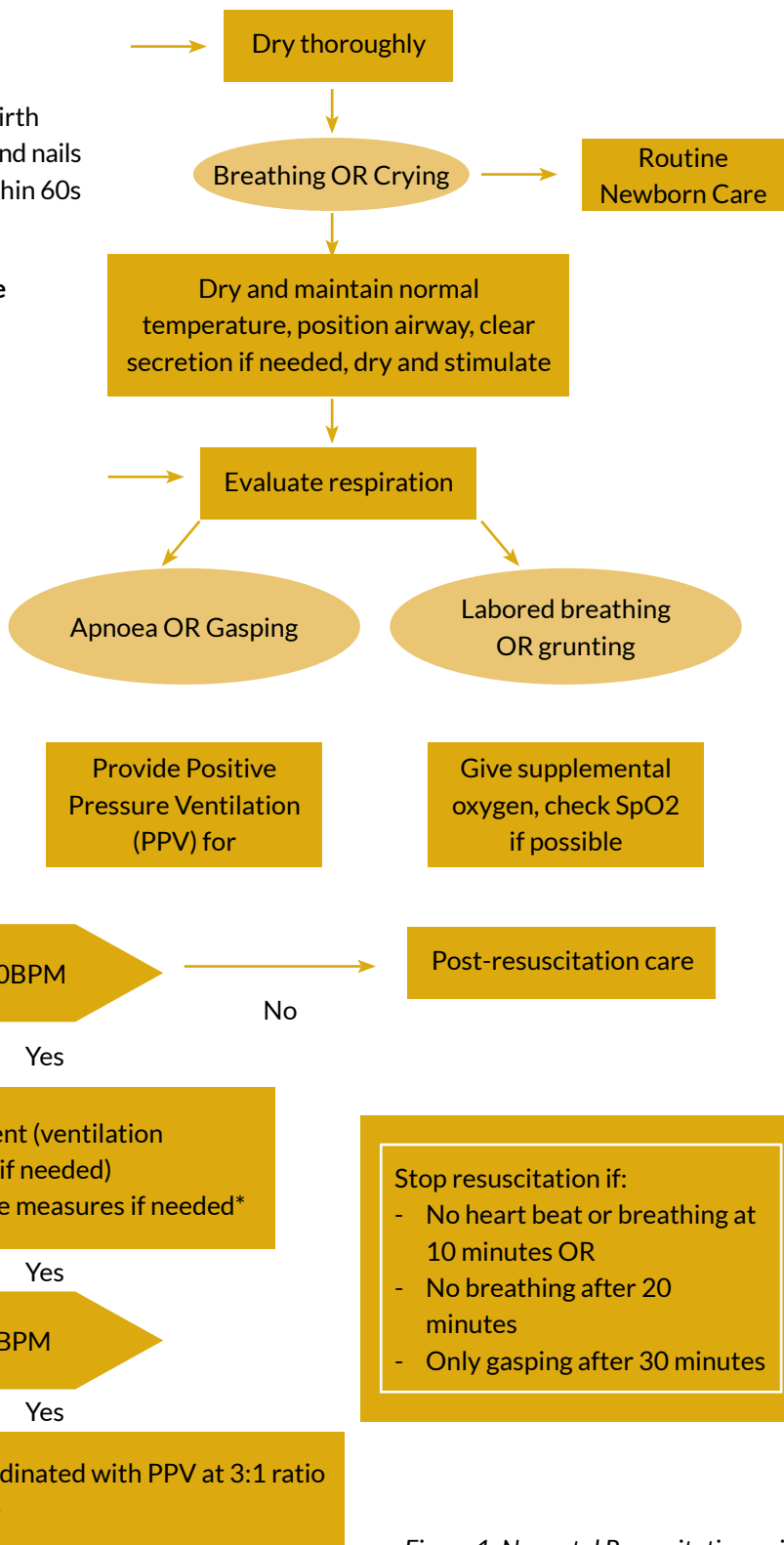


Figure 1: Neonatal Resuscitation guide

Neonatal resuscitation:

If a newborn baby is not breathing/crying and has poor tone after stimulation and routine newborn care (warm, dry, suction and/or stimulation), call for help (at least two-person resuscitation). Check for pulsation in the umbilical cord or auscultate with stethoscope (if HR is less than 100 per min); start bag and mask ventilation with oxygen:

- Prepare all equipment for bag and mask ventilation (bulb suction, oxygen, bag-valve masks of different sizes, cord clamp, scissors, gloves, stethoscope, pulse oximeter)
- Place the baby on a flat, safe surface. Remove from mother's chest
- Stand at the baby's head
- Select the correct mask. The mask should cover the chin, mouth, and nose. It should not cover the eyes
- Position the head slightly extended or neutral
- Position the mask on the tip of the chin and then over the mouth and nose
- Form a good seal. Make a C and an E with your left hand. Use the jaw lift (with your C) to keep the airway open. Press lightly on top of the mask. Squeeze bag and look for chest movement and listen/feel for leaks. Always take the appropriate size of mask.
- Give 40–60 breaths per minute. One and two and three. Squeeze on one, release on three.



Figure 2: Bag and mask ventilation

Bag and mask after 60s, evaluate: HR, breathing pattern, tone.

If HR is >100/min, normal breathing pattern and good tone: continue routine care.

If HR is <100/min, not breathing normally and poor tone: continue bag and mask ventilation.

Actions to be taken if effective ventilation is not achieved (MR SOPA): follow ventilation corrective steps. If HR is <60/min, not breathing normally with poor tone: start high-quality chest compression.

- Use two-thumb technique in 3:1 ratio (three chest compressions to one breath), target HR 100/min
- Compress one-third of anterior diameter of chest (1.5-inch/3.75cm depth in infants); minimise interruptions in chest compressions
- Use thumb to depress the sternum

MR. SOPA ventilation corrective steps (Mask adjustment; Reposition airway; Suction mouth and nose; Open mouth; Pressure increase [up to 40 cm H₂O pressure]; Airway alternative)

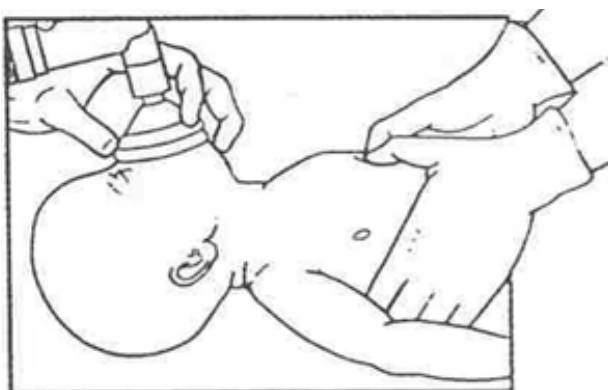


Figure 3: Bag and mask with two-thumb technique

If Heart Rate is still less than 60, baby requires advanced care: REFER (See Chapter V, Section 4).

Convulsion management:

If the child is having a convulsion, do not attempt to put anything in the child's mouth.

If the convulsion has stopped and the airway is clear, the child can be placed in the recovery position.

Check blood sugar and if there is hypoglycaemia, give IV glucose. If blood sugar is <54mg/dl in children and <45mg/dl in infants <2 months, treat for hypoglycaemia.

Treatment:

- GIVE OXYGEN: Use nasal prongs with oxygen flow of 1–2L/min initially or use nasal cannula with tape
- Give inj. Diazepam 0.2-0.3mg/kg/dose slowly, for at least one full minute.
- Diazepam can affect the child's breathing, so it is important to reassess the airway and breathing regularly. Do not give more than two doses of diazepam
- Administer diazepam Inj solution PR by a tuberculin syringe preferably with a catheter. Hold the buttocks together for a few minutes. Flush the catheter with 2ml of NS after administering diazepam
- If convulsions continue after 10 min, give a second dose of diazepam.

Refer immediately: if convulsions not controlled.

अवधी नपुगी जन्मिएका वा जन्मदा कम तौल भएका शिशुको व्यवस्थापन**शिशुको जन्म तौल लिनुहोस :**

सामान्यतौल : २.५ के.जि. वा सोभन्दा बढी (आवश्यक स्याहार गरी शिशु आमालाइ दिनुहोस)

कम तौल : १५०० ग्राम देखि २.५ के.जि. सम्म -मायाको अगालोमा राखि व्यवस्थापन गर्नुहोस)

धेरै कम तौल : १५०० ग्राम भन्दा कम -मायाको अगालोमा राखि अस्पतालमा प्रेषण गर्नुहोस)

शिशुलाई मायाको अगालोमा (Kangaroo Mother Care) राखि व्यवस्थापन गर्ने निम्नानुसारका चरणहरु ऋपनाउनुहोस

१. नवजात शिशुको लुगा फुकालिदिने र टाउकोमा टोपी र खुट्टामा मोजा लगाइ दिनुहोस ।
२. नवजात शिशुको दुइ खुट्टाको बीचमा दिसा-पिसाब जम्मा गर्ने कपडा राख्नुहोस ।
३. छालादेखि छालाको संसर्ग गर्न नवजात शिशुलाई आमाको दुइ स्तनको बीचमा राख्नुहोस ।
४. नवजात शिशुको खुट्टालाइ आमाको स्तनको मुनि राख्नुहोस ।
५. नवजात शिशुको हात लाई आमाको स्तनका माथि राख्नुहोस।
६. आमा र नवजात शिशुलाई संगै कपडाले बेर्नुहोस ।
७. लामो कपडाको बीचको भागलाई आमाको छातीमा भएको नवजात शिशुको माथि राख्नुहोस ।
८. कपडाको दुवै तिरको अन्त्यको भागलाई आमाको काखीमनिबाट ढाडमा लगी बेर्नुहोस । त्यसरी लगाएको कपडाको भागलाई सुरक्षित गाँठो बनाइ बाध्नुहोस ।
९. यदि कपडा निकै लामो भएमा कपडाको दुवै तिरको अन्त्यको भागलाई आमाको ढाडबाट फेरी अगाडी ल्याएर नवजात शिशुको तलतिर गाँठोबनाउनुहोस ।
१०. आमा उठ्दा शिशुलाई खस्न नदिन कसेर बाध्नुपर्छ तर नवजात शिशुलाई सास फेर्दा पेट चलाउने ठाउ राख्नुहोस ।

Components of Kangaroo Mother Care (KMC):

- Skin-to-skin contact: Keeping baby only in napkin in vertical position between two breasts under the mother's clothes
- Exclusive breastfeeding: To facilitate exclusive breastfeeding.

Provide privacy; maintain kangaroo position as explained above.

Duration: skin-to-skin contact to be maintained up to 24 hours a day, interrupted only for changing diapers. Stop once baby's weight is >2.5kg.

Monitoring: Regular breathing, pink in colour, normal temperature, slightly extended neck.

स्तनपान सम्बन्धी समस्या वा कम तौलको जाँच गर्नुहोस्

मूल्याङ्कन

- सोच्नुहोस्**
- शिशुलाई खाना खुवाउन गाह्रो भएको छ ?
 - शिशुले स्तनपान गर्छ ? गर्छ भने २४ घण्टामा कति पटक गर्छ ?
 - शिशुलाई अन्य दूध वा खानेकुरा वा भोलकुरा खुवाइएको छ ? छ भने कति पटक ?
 - शिशुलाई खुवाउन के के प्रयोग गर्नुहुन्छ ? (बोतल/बम्बा/कपौर)

यदि शिशुलाई :
 स्तनपान गराउन गाह्रो भएको छ ?
 वा स्तनपान २४ घण्टामा १० पटकभन्दा कम गराइन्छ ?
 वा अरु दूध वा भोलकुरा खुवाइन्छ ? वा
 वा उमेर अनुसार तौल कम छ ? र
 तुरुन्त उपचार केन्द्रमा प्रेषण गर्नुपर्ने कारण छैन भने

स्तनपानको मूल्याङ्कन गर्नुहोस् :

- शिशुलाई १ घण्टा अगाडि स्तनपान नगराइएको भए स्तनपान गर्न लगाउनुहोस् र ४ मिनेटसम्म शिशुले स्तनपान गरेको हुनुहोस् । अर्बरे स्तनपान गरेको रहेछ भने केही समय पछि शिशुले स्तनपान गर्न खोजेपछि आफूलाई बोसाउन आमासाईं थियाे ?
- के शिशुको आसन सही छ ?
 - गाँबन र शरीर विषम छ ?
 - शरीर आमातिर फर्केको छ ?
 - शरीर आमासँग टाँसिएको छ ?
 - शिशुको अरिचले चुरे अडेल पाएको छ ?

यदी १ घण्टा कुनै सवने अवस्था छैन भने, कसरी खुवाउनुहुन्छ भनेर आसन मात्रै भए पनि मूल्यांकन गर्ने।

- शिशु स्तन सम्पर्क बनाउन सफल छ ? हेर्नुहोस्
 - स्तन सम्पर्क जिन, हेर्नुहोस् :
 - चिउँकोले स्तन छोएको छ ?
 - मुख पूरा चुत्केको छ ?
 - तल्लो ओठ बाहिर फर्केको छ ?
 - स्तनको अली भाग शिशुको मुखको तलपट्टा माथिचिरे धेरै देखिन्छ ? (सम्पर्क राखे भएमा माथिछा सधैं चिन्हहरू हुनुपर्छ)

सम्पर्क राखे भएपछि

- शिशुले प्रभावकारी रूपले दूध चुर्यो छ ? (विस्तारै, गहिरोसित, कतिले काठी अडिउ दूध चुत्सेमा शिशुले प्रभावकारी रूपमा दूध चुत्सेको बुझिन्छ)
- प्रभावकारी रूपले चुत्सेको छैन
 स्तनपान गराउँदा नाक बन्द रहेछ भने नाक सफा गरिनुहोस् ।

त्यसपछि शिशुको खोपको स्थिति जाँच गर्नुहोस्

वर्गीकरण

- आसन वा स्तन सम्पर्क राखे नभएको वा प्रभावकारी चुत्साई नभएको वा
- स्तनपान २४ घण्टामा १० पटक भन्दा कम गराएको वा
- अरु खानेकुरा अथवा भोलकुरा दिने गरेको छ वा
- उमेर अनुसार कम तौल छ वा
- मुखामाथको घाउ वा रोतो दाग (ब्रस) भएको

स्तनपानको वर्गीकरण गर्नुहोस्

स्तनपान सम्बन्धी समस्या वा कम तौल

- उमेर अनुसार कम तौल नभएको र खाना नपुगेका अन्य किनहरू नभएको

स्तनपान सम्बन्धी समस्या नभएको

उपचार

- बच्चाको जोरको खाइमा र जोर जति दिनमा र गती धीम बच्चासाईं स्तनपान गराउनुहोस् ।
- स्तन सम्पर्क राखे छैन र प्रभावकारी रूपले स्तन चुत्सेको छैन भने सही आसन र स्तन सम्पर्क जोर आमासाईं सिकाउनुहोस् ।
- यदि स्तनपान २४ घण्टामा १० पटक भन्दा कम गराएको रहेछ भने पटक खडाउन सक्दाइ दिनुहोस् ।
- यदि स्तनपान जोरक अरु खानेकुरा वा भोलकुरा खुवाउने गरेको र हेरछ भने त्यस किनमाथको खाना घटाउन र भोलकुरा खान दिदा कस प्रयोग गर्न र स्तनपान वही गराउन सक्दाइ दिनुहोस् ।
- यदि स्तनपान पटकको गराउनुले रोको छ भने
 - स्तनपानको लागि परामर्श दिने छान्नेमा जाँच्न प्रेषण गर्नुहोस् ।
 - स्तनपानको बढामा रिटल दूध सही तरीकाले नजार गर्ने र उपले चुत्साउन सक्दाइ दिनुहोस् ।
- यदि मुखमिच रोतो दाग रहेछ भने अगरी घनमा पसको उपचार गर्ने अनी सिकाउनुहोस् ।
- घरमा शिशुसाईं हेरचार गर्ने आमासाईं सल्लाह दिनुहोस् ।
- खाना नपुगेको समस्या वा मुखको रोतो दाग (ब्रस) को लागि तेस्रो दिनमा अनुमानको लागि गराउन सल्लाह दिनुहोस् ।
- कम तौलको लागि १४ दिनमा अनुमानको लागि बोलाउनुहोस् ।

श्वेतमा चिनीको मात्रा कम हुनुबाट बचाउन आमाको दूध कपमा निचोरेर बच्चाको खुवाउने वा तपाईंले NG दूध राखे तालिम हाँसिल गर्नुपर्नेछ छ भने NG दूधबाट आमाको दूध खुवाउनुहोस् । नवजात शिशुले पटककै दूध चुत्से नसकेमा थप उपचारको लागि सुविधा सम्पन्न अस्पतालमा प्रेषण गर्नुपर्छ । यस्ता शिशुलाई सम्भावित गम्भिर सम्झण हुनसक्ने भएकाले १ माघा जेन्टामाईसिन सुई दिनुपर्दछ ।

**** मुख भित्रको घाउ वा रोतो दाग (ब्रस) को उपचार गर्नका लागि निम्न कुराहरु गर्नुपर्छ भनि आमासाईं सिकाउनुहोस् ।**

- हात धुनुपर्छ ।
- औलाको टुप्पोमा सफा लुगा केने र नून पानिले मुखभित्रको घाउ पुछ्नुपर्छ ।
- आधा शक्तिको (०.२४) जेन्सन भायलेट ३ देखि ४ दिनसम्म घाउमा लगाउनुपर्छ ।

खोपको तालिका

खोपको किसिम

वि.सि.वि. (डि.पि.टि, हेप.वी., हिब-१), ओ.पि.मि.-१, पि.सि.फि FIPV-1, RotA-1

उमेर

जन्मते विन्तिके/पहिलो भेटमा ६ हप्ता

शिशुले खोप लगाएको वा नलगाएको यकिन गर्नुहोस् । यदि नलगाएको भए खोप सेवा पाइने मिति र स्थान बताउदै, अनिवार्य र पमा खोप लगाउन प्रेरित गर्नुहोस् ।

शिशुको उपचार गर्नुहोस् र आमालाई परामर्श दिनुहोस्

- ▶ पखालाको उपचार गर्न बाल-उपचारको तालिकामा प्रणाली क, ख, र ग हेर्नुहोस् तर २ महिनाभन्दा कम उमेरका शिशुलाई जिङ्ग चक्की दिनु पर्दैन ।
- ▶ प्रत्येक बिरामी शिशुलाई आवश्यकता अनुसार खोप दिनुहोस्
- ▶ घरैमा स्थानीय संक्रमणको उपचार गर्न आमालाई सिकाउनुहोस्

- ▶ औषधि कसरी लगाउने भन्ने बारे बताउनुहोस् ।
- ▶ उपचार केन्द्रमा आम्हाले पहिलो मात्रा औषधि लगाएको हेर्नुहोस् ।
- ▶ यो उपचार दिनको २ पटक गर्नुपर्छ भनी उनलाई बताउनुहोस् । संक्रमण भएन भएमा उपचार केन्द्रमा उनी फर्कनु पर्छ ।

छात्ताका फोकाहरू वा नाइटोको घाउको उपचार गर्नको लागि

- आम्हाले :
- ▶ हात धुनुपर्छ (६ चरणहरू)
 - ▶ हलुका तरीकाले फोकाको पीप र पाप्राहरू दिनमा २ पटक ५ दिन सम्म साबुन पानीले सफा गर्नुपर्छ र पखालुपर्छ
 - ▶ घाउ सुख्खा पार्नुपर्छ
 - ▶ जेन्सन भायोलेट (०.५%) लगाउनुपर्छ
 - ▶ फेरि हात धुनुपर्छ

कमलपित्तको घरैमा उपचार गर्न आमालाई सिकाउनुहोस्

- यस्तो बेलामा :
- ▶ आमाले खाना बार्नु पर्दैन र आमाको खानाले शिशुलाई कुनै फरक पनि पर्दैन
 - ▶ तेल घस्नाले बेफाइदा गर्दैन
 - ▶ खुट्टो पानी लगायतका अन्य घरेलु वा अन्य कुनै औषधि दिनु हुँदैन
 - ▶ शिशुलाई विहानको नपौले घाममा नाङ्गै १ - २ घण्टासम्म राख्नुहोस्

मुखभित्तको घाउ वा सेता बागहरू (शस) को उपचार गर्नको लागि

- आम्हाले :
- ▶ हात धुनुपर्छ (६ चरणहरू)
 - ▶ औंलाको टुप्पामा सफा लुगा बनें र नुन पानीले भिजाएर मुख भित्तको घाउ दिनमा ४ पटक ७ दिनसम्म पुछ्नुपर्छ
 - ▶ आधा शक्तिको जेन्सन भायोलेट (०.२५%) वा Clotrimazole mouth paint दिनमा ४ पटक ७ दिनसम्म घाउमा लगाउनुपर्छ ।
 - ▶ फेरि हात धुनुपर्छ ।

आँखाको स्थानिय सङ्क्रमणको उपचार गर्नुहोस्

- ▶ हात धुनुपर्छ (६ चरणहरू)
- ▶ आँखामा रहेको पीपलाई उमालेर सेलाएको सफा पानीले सफा गर्नुहोस् । यो प्रकृया आँखाबाट पीप बग्न नरोकीएसम्म जारी राख्नुहोस् ।
- ▶ पीप सफा गरिसकेपछि Ciprofloxacin eye/ear drop १ थोपा दिनको ४ पटक ७ दिनसम्म राख्नुहोस् ।

कम तौल, उमेर नपगी जन्मेका शिशुलाई शिताङ्ग हुनबाट बचाउन आमालाई सिकाउनुहोस्

- शिशुलाई न्यानो पारी राख्ने तरिका :
- ▶ न्यानो कोठामा सुत्केरी गराउने ।
 - ▶ सफा, नरम र सुखा कपडाले शिशुको शरीर पुछी दिने र बेर्ने ।
 - ▶ आमाको छाती, पेटसँग शिशुलाई टाँसेर राख्ने ।
 - ▶ तुरन्त स्तनपान शुरु गर्ने ।
 - ▶ शिशु जन्मेको कम्तीमा २४ घण्टासम्म ननुहाइदिने ।
 - ▶ शिशुलाई न्यानो कपडाले टाउको समेत छोपेर बेर्ने ।
 - ▶ सुत्नेबेलामा शिशुलाई आमालसँगै टाँसेर सुत्ताउने ।

मायाको अँगालो विधि के हो ?

- ▶ यो हेरचाह गर्ने प्राकृतिक तरिका हो र यसले शिशुको जीवन बचाउँछ ।
 - ▶ कम तौल भएका शिशुलाई शिताङ्ग हुनबाट बचाउँछ ।
 - ▶ शिशुलाई दूध खुवाउन सजिलो हुन्छ ।
 - ▶ शिताङ्ग भएका शिशुहरूलाई पुन न्यानो पार्न यो तरिका प्रभावकारी छ ।
- शिशुलाई सामान्य हुने तापक्रम आमालाई केही गरम पनि लाग्न सक्छ । जुन सामान्य हो ।

१ घण्टापछि पुनर्मल्याकन गर्नुहोस्

- ▶ व्याक्टेरियाको सम्भावित संक्रमणको लागि जाँच गर्नुहोस् ।
- ▶ यदि संक्रमणका कुनै लक्षण छैनन् र तापक्रम सामान्य छ भने शिशुको स्याहारलाई निरन्तरता दिन आमालाई सल्लाह दिनुहोस् ।
- ▶ शिताङ्ग भएका शिशुहरूलाई पुन न्यानो पार्न यो तरिका प्रभावकारी छ ।

शिशुको उपचार गर्नुहोस् र आमालाई परामर्श दिनुहोस्

स्तनपातको सही आसन र स्तन सम्पर्कबारे आमालाई सिकाउनुहोस्

- ▶ स्तनपात गराउँदा आमाले शिशुलाई कसरी लिनु पर्छ (आसन) भनेर सिकाउनुहोस्
 - शिशुको टाउको र गीउ सीधा पारेर समालुहोस्
 - शिशुको मुख स्तनतिर फर्काउनुहोस् र शिशुको नाक स्तनको मुटोको डीक अगाडि पार्नुहोस्
 - शिशुको शरीर आफ्नो जीउसँग टाँसेर राख्नुहोस्
 - शिशुको गर्दन र कंधा मात्र नभई सम्पूर्ण शरीरलाई नै हातले आड दिइ राख्नुहोस्
- ▶ स्तन सम्पर्क कसरी गराउने भनेर आमालाई सिकाउनुहोस् आमााले :
 - स्तनको मुटोलाई शिशुको माथिल्लो ओठमा छुवाउनुपर्छ
 - शिशुले मुख पुरा नखोलेसम्म पर्बिनुपर्छ
 - शिशुको तल्लो ओठ स्तनको मुटो भुगि पर्ने गरी शिशुलाई आफ्नो स्तनतिर छिटो तान्नुपर्छ ।
 - स्तनको अधिकांश भाग शिशुको मुख भित्र पसेको हुनुपर्दछ र शिशुको तलको ओठ फर्किएको हुनुपर्दछ ।
- ▶ शिशुले राम्ररी स्तन सम्पर्क गरेको र प्रभावकारी रूपले दूध चुसेका चिन्हहरू हेर्नुहोस् । यदि स्तन सम्पर्क राम्रो छैन र प्रभावकारी रूपले दूध चुसेको छैन भने केरि प्रयास गर्नुहोस् । कहिले काही यसरी धेरै पटक प्रयास गर्नुपर्ने हुनसक्छ ।

कम तौल भएका शिशुलाई दूध कति खुवाउने ?

- शिशुलाई निम्न अनुसार दूध खुवाउने :
- ▶ पहिलो दिन ६० मि.ली. प्रति के.जी. प्रति दिन
 - ▶ दोस्रो दिन ८० मि.ली. प्रति के.जी. प्रति दिन
 - ▶ तेस्रो दिन १०० मि.ली. प्रति के.जी. प्रति दिन
 - ▶ चौथो दिन १२० मि.ली. प्रति के.जी. प्रति दिन
 - ▶ पाँचौं दिन १४० मि.ली. प्रति के.जी. प्रति दिन
 - ▶ छैठौं दिन १६० मि.ली. प्रति के.जी. प्रति दिन
- दूध २ घण्टाको फरकमा खुवाउने र २४ घण्टामा १० पटक खुवाउने ।
- नोट:** १ चिया चम्चा बराबर ५ मि.लि. हुन्छ ।

बिरामी परेको बेलामा र स्वस्थ अवस्थामा पनि दिनमा र राती शिशुले खान खोजेसम्म र बढी समयसम्म बारम्बार स्तनपात गराउनुहोस् ।

उपचार केन्द्रमा कहिले तुरुन्त फर्कने

अनुगमन भन्ने

यदि शिशुलाई निम्न रोग भएमा	अनुगमनको लागि आउने समय
थ्याक्टोरियाको संभार, स्थानीय संक्रमण, कडा सिताइड खाना सम्बन्धी कुनै समस्या मुछामित्रको घाउ वा सेता शगहरू (डस)	३ दिनमा
उमेर अनुसार कम तौल	१४ दिनमा
अन्य कुनै रोग, यदि सुधार नभएमा	५ दिनमा
जलवियोजन नभएको तर पसाला भइरहेमा	५ दिनमा
कमसोपित	३ दिनमा

- ▶ शिशुलाई २४ सै घण्टा न्यातो पारी राखिएको छ भन्ने बारे निश्चित हुनुहोस्
 - जाडो सोबनमा न्यातो लुगाले शिशुको टाउको र खुट्टा छान्नुहोस् र शिशुलाई थप लुगा लगाइ दिनुहोस्

उपचार केन्द्रमा कहिले तुरुन्त फर्कने

यदि शिशुलाई निम्नमध्ये कुनै एउटा चिन्ह देखिएमा आमालाई उपचार केन्द्रमा तुरुन्त फर्कने सल्लाह दिनुहोस्	पिउन वा स्तनपात गर्न नसकेमा
	भन्नु बिरामी भएमा
	ज्वरो आएमा
	सास छिटो छिटो फरेमा
	सास फेर्ने कठिनाई भएमा
	दिसामा रगत देखिएमा
	कमसोपित हल्केमा र पैतालामासम्म फैलिएमा

► ब्याक्टेरियाको स्थानीय संक्रमण

२ दिनमा :

नाइट्रो हेर्नुहोस् । यो रातो भएको छ वा यगवाट पीप वगैको छ ? यो रातोपना छालामम फैलिएको छ ?

छालामा फोकाहरू हेर्नुहोस् । यस्ता फोकाहरू धेरै वा कडा खालका छन् ?

उपचार :

- यदि पीप र रातोपना त्यतिकै रहिरहयो वा बढ्दै गयो भने उपचार केन्द्रमा प्रेषण गर्नुहोस् ।
- यदि पीप र रातोपना हराउँदै गएको रहेछ भने एन्टिबायोटिक ५ दिनसम्म अट्ट रूपले खान दिनुहोस् र स्थानीय संक्रमणको उपचार घरेमा जारी राख्नुहोस् ।

► कमलपित्त

कमलपित्तको मूल्यांकन गर्नुहोस् । के यो हल्केला र पेटालामा फैलिएको छ ?

कमलपित्त भएको कति दिन भयो ?

उपचार :

- यदि कमलपित्त भएको शिशुको उमेर १४ दिन भन्दा बढी भएको छ वा कमलपित्त हल्केला र पेटालामा फैलिएको छ भने प्रेषण गर्नुहोस् ।
- यदि कमलपित्त जस्ताको तस्तै छ, शिशुको उमेर २-१४ दिन छ भने आमालाई “कमलपित्त भएको शिशुको स्याहार” अनुसार घरेमा उपचार जारी राख्न सन्लाह दिनुहोस् ।
- यदि कमलपित्त भएको शिशुको उमेर १ दिन भित्रभए वा १४ दिन भन्दा बढि भए वा कमलपित्त हल्केला/ पेटालामम फैलिएको भए प्रेषण गर्नुहोस् ।

यदि तपाईंलाई छुवाइना सुधार हुन्छ जस्तो लाग्दैन वा शिशुको तौल घटेको छ भने, प्रेषण गर्नुहोस् ।

► खाना सम्बन्धी समस्या

३ दिनमा

खाना सम्बन्धी पुनर्मुल्यांकन गर्नुहोस् । खाना सम्बन्धी समस्या वा कम तौलको जाँच भन्ने तालिकामा हेर्नुहोस् । पहिलो भेटमा खाना सम्बन्धी भेटिएका समस्याहरू बारे सोच्नुहोस् ।

- पुरानै समस्या वा नयाँ समस्याको बारे त्रुफ. आमालाई परामर्श भन्ने षण्डको खाना सन्धिगत तालिका अनुसार आमालाई सल्लाह दिनुहोस् । यदि तपाईंले आमालाई खाना परिवर्तन गर्ने महत्वपूर्ण सल्लाह दिनुहुन्छ भने उक्त पटक आउंदा शिशुलाई पनि साथ लिएर आउन अनुरोध गर्नुहोस् ।
- यदि शिशुको उमेर अनुसार कम तौल छ भने, पहिलो भेटको १४ दिनपछि शिशुको तौल बढे नबढेको हेर्न शिशुलाई लिएर आउने सल्लाह दिनुहोस् ।

अपवाद

यदि तपाईंको विचारमा खानासम्बन्धी सुधार हुन्छ जस्तो लाग्दैन वा शिशुको तौल घटेको छ भने शिशुलाई प्रेषण गर्नुहोस् ।

► कम तौल

१४ दिनपछि

शिशुको तौल लिनुहोस् र उमेर अनुसार उम्के कम तौल छ कि निर्धारण गर्नुहोस् ।

खाना सम्बन्धी पुनर्मुल्यांकन गर्नुहोस् । खाना सम्बन्धी समस्या वा कम तौलको जाँच भन्ने तालिकामा हेर्नुहोस् ।

- उमेर अनुसार कम तौल छैन भने आमार्को प्रशसा गर्नुहोस् र हाल दिइरहेको खाना नै सुबाडरहनलाई प्रोत्साहन गर्नुहोस् ।
- यदि उमेर अनुसार उम्के कम तौल छ तर खाना राम्ररी खाँदै छ भने आमार्को प्रशसा गर्नुहोस् । शिशुलाई १ महिना भित्र वा सोप दिन आउंदा बच्चाको तौल लिने सल्लाह दिनुहोस् ।
- यदि बच्चाको उमेर अनुसार उम्के कम तौल छ र खाना सम्बन्धी उम्के समस्या छ भने खाना सम्बन्धी समस्याको लागि आमालाई परामर्श दिनुहोस् । १४ दिनमा (वा सोपको लागि २ हप्तामा) आउने पर्ने रहे छ भने त्यसै बेला) आमालाई फेरि आउन भन्नुहोस् । शिशुले राम्ररी खाने नबढेसम्म र तौल नबढेसम्म अथवा उमेर अनुसार तौल कम भएसम्म केही हप्ता लगातार जाँच गरिनु नु जाँच राख्नुहोस् ।

अपवाद

यदि तपाईंको विचारमा खानासम्बन्धी सुधार हुन्छ जस्तो लाग्दैन वा शिशुको तौल घटेको छ भने शिशुलाई प्रेषण गर्नुहोस् ।

व्यवस्थापन

शिशुको उपचार गर्नुहोस् र आमालाई परामर्श दिनुहोस्

एम्पीसिलिनको डोज

तौल	एम्पीसिलिन (५० मि.ग्रा. प्रति के.जी - २५० मि.ग्रा. भाएल)
	१.३ मि.लि डिस्टिल वाटर राखी घोलुहोस् २५० मि. ग्रा./ १.५ मि.लि
१- < १.५ के.जी	०.४ मि.लि
१.५- < २ के.जी	०.५ मि.लि
२ - < २.५ के.जी	०.७ मि.लि
२.५ - < ३ के.जी	०.८ मि.लि
३ - < ३.५ के.जी	१.० मि.लि
३.५ - < ४ के.जी	१.१ मि.लि
४ - < ४.५ के.जी	१.३ मि.लि

जेन्टामाइसिलिनको डोज (५ मि.ग्रा. प्रति के.जि. प्रतिदिन)	
तौल	मात्रा : ८० मि.ग्रा. प्रति २ एम.एल भायल
२.५ के.जि सम्म.	१० मि.ग्रा प्रत्येक दिन ७ दिन सम्म
२.५ के.जि.भन्दा माथि	१५ मि.ग्रा प्रत्येक दिन ७ दिन सम्म

- ब्याक्टेरियाको सम्भावित गम्भिर संक्रमण, कडा कमजोर, कडा शिलाइको लागि;
 - ▲ IV cannula द्वारा एम्पिसिलिन लगाउन सकिने अवस्था छ भने एम्पिसिलिन र जेन्टामाइसिलिन सुई दिनुहोस्
 - ▲ IV cannula द्वारा एम्पिसिलिन लगाउन सकिने अवस्था छैन भने ओरल एम्पिसिलिन र जेन्टामाइसिलिन सुई दिनुहोस्
- नोट :
- ▲ जेन्टामाइसिलिन सुई दिनमा १ पटक ७ दिन सम्म विप्राको मासपेक्षीमा पलेसको दिनुहोस् ।
 - ▲ १ हप्ता भन्दा कमको बच्चालाई एम्पिसिलिन सुई दिनमा २ पटक र १ हप्ता भन्दा माथिको शिशुलाई दिनमा २ पटक ७ दिनसम्म दिनुहोस् ।

- IV Cannula लगाउन नसकेको अवस्थामा ब्याक्टेरियाको गम्भिर संक्रमणको लागि तथा ब्याक्टोरियाको स्थानिय संक्रमणको लागि उमेर अनुसार एम्पिसिलिनको उपयुक्त मात्रा दिनुहोस्

एमोक्सिसिलिनको डोज

उमेर वा तौल	एमोक्सिसिलिन (दिनको २ पटक ५ दिन सम्म)	
	फोल :	चक्की
	(१२५ मि.ग्रा. प्रति ५ मि.लि.)	(१०० मि.ग्रा. प्रति १ मि.लि.)
जन्मेदेखि १ महिना (४ के.जि. भन्दा कम)	५ मि.लि	१.५ मि.लि.
१ महिनादेखि २ महिना (४-६ के.जि. सम्म)	७.५ मि.लि.	२ मि.लि.
		३/४ चक्की

2. MANAGEMENT OF CHILDREN 2 MONTHS TO 5 YEARS
(दुई महिना देखि ५ वर्ष सम्मका शिशुको व्यवस्थापन)

मूल्यांकन र वर्गीकरण
२ महिनादेखि ५ वर्षसम्मको बिरामी बच्चा

मूल्यांकन

वर्गीकरण

उपचार

- बच्चामा के के समस्या छन् भनी आमासँग सोध्नुहोस्
- चलचलन, या समस्याको नाम तच्चाताई पहिलो पटक व्यापको हो कि, अनुपमल भेटको नाम व्यापको हो निर्दिष्ट गर्नुहोस् ।
 - अनुपमल भेटको नाम व्यापको हो भने बाल उपचारको अनुपमल निर्देशन अनुसार बर्नुहोस् ।
 - पहिलो भेट हो भने निम्न अनुसार बच्चाको मूल्यांकन गर्नुहोस् ।

सामान्यतया देखिने खतराका चिन्हहरू जाँच्नुहोस्

सोध्नुहोस्:

हेर्नुहोस्

- बच्चाको हिजोत वा मुँह चर्क सफा छ ।
- बच्चा सुस्त वा बर्तास छ कि ।
- बच्चाको हाँसेको आँत सल्लो वा ताँता बर्छ ।
- हेर्नुहोस्
- बच्चाकाँडे कमल भएको छ ।

सामान्यतया देखिने कुनै पनि खतराका चिन्ह बच्चामा देखिन्छ भने मुल्ल विशेष ध्यान दिनुपर्छ, मूल्यांकन पूरा गर्नुहोस् र प्रेषणा पूर्व बरिले उपचार तत्काल दिनुहोस्, र मुल्ल प्रेषणा गर्नुहोस् ।

त्यसपछि, मुख्य लक्षणहरूका बारेमा सोध्नुहोस् :

बच्चाताई खोकी लागेको छ वा सास फेर्न कठिनाई छ ?

छ, भने, सोध्नुहोस्

- कति दिनदेखि ?
- एक मिनेटमा सास दर कति ?
- बोक्सा हानेका हुने ?
- स्पुट्टडर मुल्ले र हेर्ने ?

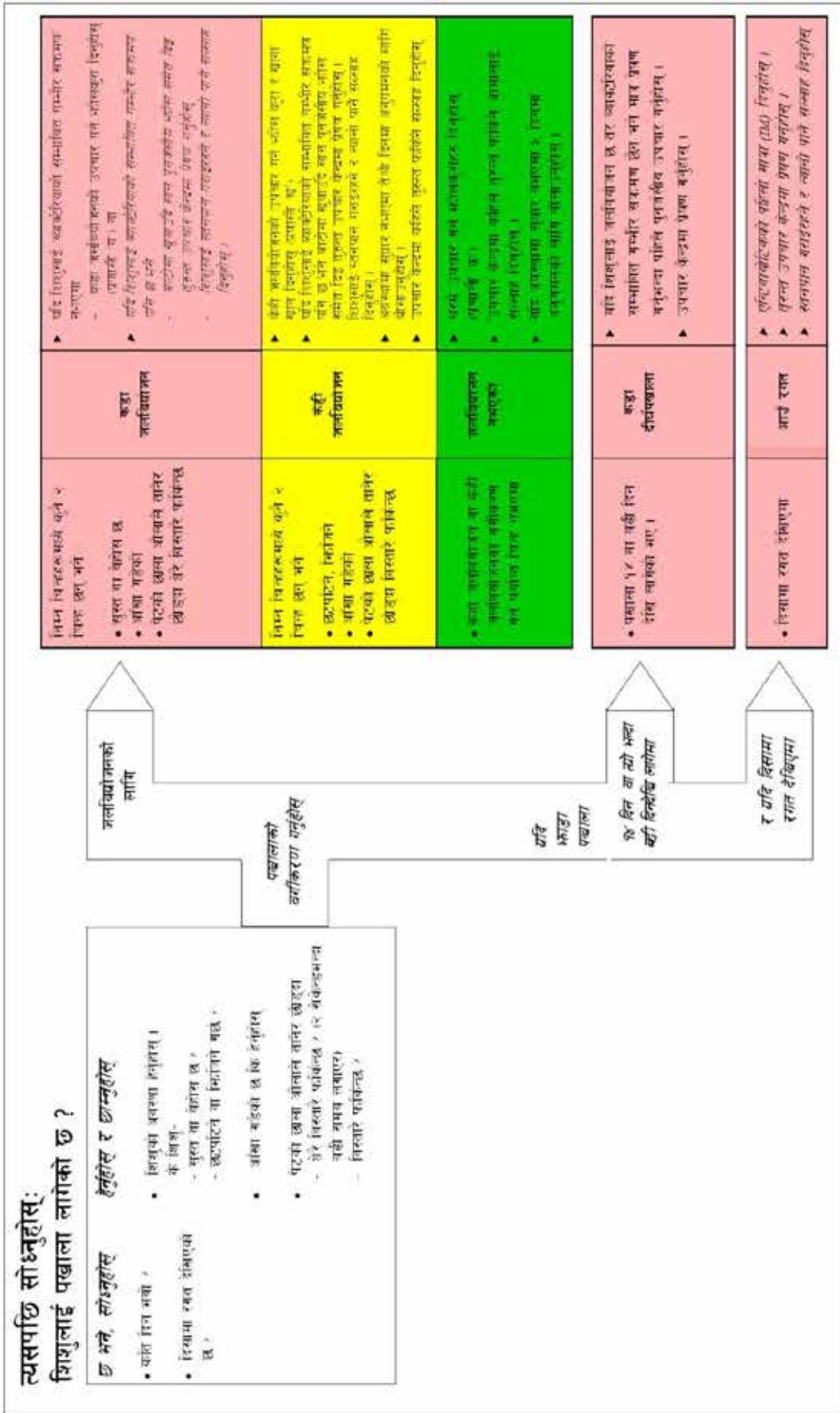
यो जाँच गर्दा बच्चा शान्त भएको हुनुपर्छ

खोकी वा सास फेर्न कठिनाईको वर्गीकरण गर्नुहोस्

कक्षाको उमेर	दिउँसोको बाल फेरिने भन्ने
२ देखि ५ वर्ष	सास दर ५ मिनेटमा ५० पटक वा बढी भए
५ वर्षसम्म	सास दर ५ मिनेटमा ४० पटक वा बढी

रोगको वर्गीकरण गर्ने बच्चाको लक्षण र समस्यासँग मेलखाने सबै कोटाहरूलाई प्रयोगमा ल्याउनुहोस्

चिन्ह	वर्गीकरण	उपचार
<ul style="list-style-type: none"> • सामान्यतया देखिने खतराको कुनै चिन्ह छ भने वा • बोक्सा हानेको छ वा • शान्त रहेको • बच्चाका स्पुट्टडर सुनिन्छ भने 	कडा न्यूमोनिया वा धेरै कडा रोग	<ul style="list-style-type: none"> ▶ उपयुक्त एन्टिबायोटिकको पहिलो मात्रा दिनुहोस् ▶ सुस्त उपचार केन्द्रमा प्रेषण गर्नुहोस् ▶ यो बर्तिकरणको साथै पिठो, मुखमा सेउ देखिएमा वा तीस भन्दापछाया भएमा वा धेरै कम तोल भएमा एच आउ भी को लेखा-लेखा गरी सो अनुसार व्यवस्थापन गर्ने ।
<ul style="list-style-type: none"> • कडा कडा सास फेरेको छ भने 	न्यूमोनिया	<ul style="list-style-type: none"> ▶ ३ दिनको लागि उपयुक्त एन्टिबायोटिक दिनुहोस् ▶ सुनिष्ठ बर्तिकरणबाट बच्चाको सुवाइ कम पार्नुहोस् र बर्तिकरणबाट सुट्टडरमा रिक्तपुर्ण गर्ने । ▶ उपचारकेन्द्रमा बर्तिकरण हुनुपर्छ र सुस्त उपचार दिनुहोस् । ▶ हेर्दा दिनमा अनुपमल गर्नुहोस् ।
<ul style="list-style-type: none"> • न्यूमोनिया वा धेरै कडा रोगको चिन्ह छैन भने 	न्यूमोनिया नभएको शंकाको	<ul style="list-style-type: none"> ▶ ४० डिग्रेसेन्ट अग्री अन्तर्देखि अन्तर्देखि खोकी छ भने यसको खोकी सँगै उपचार गर्नुहोस् । ▶ सुनिष्ठ बर्तिकरणबाट बच्चाको सुवाइ कम पार्नुहोस् र बर्तिकरणबाट सुट्टडरमा रिक्तपुर्ण गर्ने । ▶ उपचार केन्द्रमा बर्तिकरण हुनुपर्छ र सुस्त उपचार दिनुहोस् । ▶ धेरै बर्तिकरण सुन्नु नभएमा ३ दिनमा अनुपमलको लागि जाँच गर्नुहोस्



** यदि उपचार गर्ने सम्भव छैन भने, किनभनेको अवस्थाहरूमा बाल-उपचार गर्नु आवश्यक हुन्छ भने परिशिष्ट हेर्नुहोस् ।

व्याकटेरियाको संक्रमण
 पखाला
 मुखकान र वर्गीकरण

कुपोषणको जाँच गर्नुहोस्

हेर्नुहोस् र छान्नुहोस्

- देखिनैगारि शरिरको मासु कडा किसिमले सुकेको वा
- डुबै बहा सुनिएको छ वा छैन हेर्नुहोस् र छान्नुहोस्
- उमेर अनुसारको तौल लिनुहोस् *
- ६ महिना भन्दा माथिको बच्चा भएमा **MUAC** फिताले देखे पासुराको मध्य भाग नाजुहोस् ।
- उमेर अनुसारको तौल हेर्नुहोस्
- **Z score** हेर्नुहोस् (तौल अनुसारको उचाई / लम्बाई)

योग्य अवस्थाको बर्गीकरण गर्नुहोस्

* यदि तपाईंको जिल्लामा **IMAM/IVCF** लागू भएको छ भने लम्बाई/उचाई अनुसार लोच, उमेर अनुसार उचाई बर्गीकरण गर्नुहोस् । यकी, बर्गीकरण गरिएको भए रिकर्डमा के फिच्यमा उल्लेख गर्नुहोस् ।

<ul style="list-style-type: none"> • देखिनै गारि शरिरको मासु सुकेको वा डुबै बहा सुनिएको छ वा हेर्नुहोस् र छान्नुहोस् • मुआकः < ११५ मि.मि. भन्दा कम वा रातो वा • उमेर अनुसारको हेर कमतौल (< -३ SD) 	<p>कडा शिशु कुपोषण</p>	<ul style="list-style-type: none"> • मिटोमिन ए दिनुहोस् । तर म्याग्नेसियम अभावकोलाई सुनिाएको हराएपछि मात्र मिटोमिन ए दिनुपर्छ । • कडा शिशु कुपोषण, छरे कमतौल भएकोलाई प्रेषण गर्नुहोस् ।
<ul style="list-style-type: none"> • मुआकः ११५ देखि १२५ मि.मि. सम्म (वहेलो) वा • उमेर अनुसारको कमतौल (< -२ देखि -२ SD) 	<p>मध्यम शिशु कुपोषण</p>	<ul style="list-style-type: none"> • मध्यम शिशु कुपोषणमा अन्य बटिल रोगको संकेत देखाएमा तुरुन्त नडिकको उपचार केन्द्र (पोषण पर्यवधान केन्द्र) मा प्रेषण गर्नुहोस् । • बच्चाको सानावटे छलफल तथा मूल्यांकन गर्नुहोस् र आमा-बाई परामर्श खाइको वा मासुको तालिकाको आधारमा सल्लाह दिनुहोस् । • यदि बाला सन्धवी समस्या छ भने ५ दिनमा अनुगमनको लागि बोलाउनुहोस् । • उपचार केन्द्रमा कहिले तुरुन्त कहिले आमाबाई सल्लाह दिनुहोस् । • उमेर अनुसारको कमतौल भए ३० दिनमा अनुगमनको लागि बोलाउनुहोस् । • यदि बच्चा १ वर्ष भन्दा बढी उमेरको छ र विषाणु ६ महिना भित्र जुकाको औषधि दिइएको छैन भने अन्वेषणको लागि बाला दिनुहोस् ।
<ul style="list-style-type: none"> • मुआकः > १२५ मि.मि. (होरियो) वा • उमेर अनुसारको सामान्य तौल वा • उचाई अनुसारको सामान्य तौल 	<p>कुपोषण नभएको</p>	<ul style="list-style-type: none"> • बच्चाको सानावटे छलफल तथा मूल्यांकन गर्नुहोस् र आमाबाई परामर्श गर्ने बच्चाको साना सन्धवी तालिकाको आधारमा आमाबाई सल्लाह दिनुहोस् । • बाला सन्धवी समस्याभए ५ दिनमा अनुगमनको लागि बोलाउनुहोस् । • उपचार केन्द्रमा कहिले कहिले सल्लाह दिनुहोस् ।

मूल्यांकन

हेर्नुहोस्

- हल्केनामा सेतोपन हेर्नुहोस् - हल्केनामा धेरै सेतोपना - हल्केनामा कहि सेतोपना

रक्तअल्पताको बर्गीकरण गर्नुहोस्

बर्गीकरण रक्तअल्पताको जाँच गर्नुहोस्

उपचार

<ul style="list-style-type: none"> • हस्तरेखा सहित हल्केताको सेतोपन • हल्केनामा केही सेतोपन तर हस्तरेखा सेतो नभएको 	<p>रक्तअल्पता</p>	<ul style="list-style-type: none"> • रक्तअल्पता भएकोलाई तुरुन्त अस्पतालमा प्रेषण गर्नुहोस् । • यदि सेतोपना भए आइडन चक्की दिनुहोस् । • यदि बच्चा १ वर्ष भन्दा बढी उमेरको छ र विगत ६ महिना भित्र जुकाको औषधि दिइएको छैन भने अन्वेषणको लागि बाला दिनुहोस् । • उपचार केन्द्रमा कहिले तुरुन्त कहिले आमाबाई सल्लाह दिनुहोस् । • यदि सेतोपनाभए १४ दिनमा अनुगमनको लागि बोलाउनुहोस् / उमेर अनुसारका कमतौल भए वा उचाई अनुसारको कमतौल भए ३० दिनमा अनुगमनको लागि बोलाउनुहोस् ।
<ul style="list-style-type: none"> • हल्केनामा सेतोपन नभएको 	<p>रक्तबल्यता नभएको</p>	<ul style="list-style-type: none"> • यदि बच्चा २ वर्ष भन्दा बढी भए सानावटे मूल्यांकन गर्नुहोस् र आमाबाई परामर्श गर्ने बच्चाको साना सन्धवी तालिकाको आधारमा आमाबाई सल्लाह दिनुहोस् । • बाला सन्धवी समस्याभए ५ दिनमा अनुगमनको लागि बोलाउनुहोस् । • उपचार केन्द्रमा कहिले कहिले सल्लाह दिनुहोस् ।

बाल-उपचार

पहिचान गरिएका उपचारका चरणहरू अपनाउनुहोस्

घरैमा औषधि कसरी खुवाउने भनी आमालाई सिकाउनुहोस्

घरैमा खुवाउने प्रत्येक औषधिको बारेमा निम्न निर्देशनहरूको अनुसरण गर्नुहोस् । साथै, हरेक औषधिको मात्रा- देबुलमा दिइएका निर्देशनहरूको पालना गर्नुहोस् ।

- ▶ बच्चाको तौल वा उमेरको आधारमा उपयुक्त औषधि र त्यसको मात्रा निर्धारण गर्नुहोस् ।
- ▶ औषधि खानुपर्ने कारण आमालाई रामरी बताउनुहोस् ।
- ▶ औषधिको मात्रा कसरी नान्ने भनी रामरी देखाउनुहोस् ।
- ▶ आमाले औषधिको मात्रा नान्ने अभ्यास गरेको ध्यानपूर्वक हेर्नुहोस् ।
- ▶ आमालाई हात धुन लगाई बच्चालाई औषधिको पहिलो मात्रा खुवाउन आमालाई नै लगाउनुहोस् ।
- ▶ औषधि कसरी खुवाउने बारे आमालाई रामरी बताउनुहोस् र औषधिलाई लेबल गरिएको खाममा राखेर दिनुहोस् ।
- ▶ यदि एकभन्दा बढी औषधि दिइएको छ भने प्रत्येक औषधिलाई भनेर बेग्ला बेग्लै खाममा राख्नुहोस् ।
- ▶ बिरामी निको हुँदै गए पनि खाने औषधि जति बित्तको लागि दिइएको छ सबै खुवाइसक्नु पर्छ भन्ने कुरा बताउनुहोस् ।
- ▶ बच्चाको आमाले कति कुरा बुझेकोछिन् जानुअघि जाँच्नुहोस् ।

घरैमा औषधि कसरी खुवाउने भनी आमालाई सिकाउनुहोस्

बच्चा खुवाउने प्रत्येक औषधिको बारेमा निम्न निर्देशनहरूको अनुसरण गर्नुहोस् । साथै, हरेक औषधिको मात्रा देबुलमा दिइएका निर्देशनहरूको पालना गर्नुहोस् । याद गर्नुहोस् बच्चाहरूमा मसैरिया विट्ठको औषधीले रगतमा बिर्जीको मात्रा कम गराउन सक्छ । त्यसैले स्तनपान र बिर्जी पानी दिनुहोस् ।

बच्चालाई औलो भए औलो रोगको Chapter अनुसार उपचार

▶ उपयुक्त खाने एन्टिबायोटिक दिनुहोस्

- ▶ न्युमोनिया, कानको एक्स्ट सङ्क्रमणका लागि पहिलो-पङ्क्तको एन्टिबायोटिक : एमोक्सिसिलिन

उमेर वा तौल	बक्की	एमोक्सिसिलिन	
		दिनको २ पटक ५ दिनसम्म दिनुहोस्	दिनको २ पटक ५ दिनसम्म दिनुहोस्
२ देखि ६ महिना (४-६ के.जि.)	२/४	१२५ मि.ग्रा. प्रति ५ मि.लि. दुब (१०० मि.ग्रा. प्रति १ मि.लि.)	२ मि.लि.
६ महिना देखि १२ महिना (६-८ के.जि.)	१	७५ मि.लि.	-
६ महिना देखि १२ महिना (८-१० के.जि.)	१.५	१० मि.लि.	-
१२ महिनादेखि ३ वर्ष (१०-१४ के.जि.)	२	१५ मि.लि.	-
३ वर्ष देखि ५ वर्ष (१४-१९ के.जि.)	२.५	-	-

निमोनिया भएको बच्चाको अनुगमन गर्दा सुधार नभएमा प्रेषण गर्नुहोस् ।

- ▶ आई रगत एन्टिबायोटिक : मिप्रोफ्लोक्ससिन

उमेर वा तौल	मिप्रोफ्लोक्ससिन	
	दिनको २ पटक ३ दिन दिनुहोस्	बक्की २४० मि.ग्रा.
६ महिना भन्दा कम		१/२
६ महिनादेखि ५ वर्षसम्म		१

- ▶ आईरगत भएर सिप्रोफ्लोक्ससिन दिनुपर्ने अवस्थामा यदि न्युमोनिया वा कानको एक्स्ट सङ्क्रमण पनि भएमा एमोक्सिसिलिन दिनु पर्दैन ।

▶ हेजा

- ▶ पहिलो पङ्क्तको एन्टिबायोटिक : सिप्रोफ्लोक्ससिन
- ▶ दोस्रो पङ्क्तको एन्टिबायोटिक : एन्टिमोर्गार्लिन

उमेर वा तौल	सिप्रोफ्लोक्ससिन		एन्टिमोर्गार्लिन
	दिनको २ पटक ३ दिन दिनुपर्ने	बक्की २४० मि.ग्रा.	
२ देखि ४ महिना (४-६ के.जि.)		१/४	१/४
४ देखि १२ महिना (६-१० के.जि.)		१/२	१/२
१२ महिनादेखि ५ वर्षसम्म (१०-१९ के.जि.)		१	१

▶ एच. आई. मि संक्रमित/संक्रम भएक

- ▶ एन्टिबायोटिक: कोट्रिमोक्सजोल प्रोफाइल्यक्सन्स

मात्रा: प्रोफाइल्यक्सन्सको लागि दिनको १ पटक (अर्को पटकको अनुगमन ४ देखि ६ हप्ता सम्मका लागि पुग्ने गरी दिने)

उमेर	कोट्रिमोक्सजोल (क्लोमिप्रोक्सजोल + ट्राइमिप्रोपिम)	
	बक्की १०० मि.ग्रा./२० मि.ग्रा.	बक्की ४०० मि.ग्रा./८० मि.ग्रा.
६ महिना मुनि	१ बक्की	भोलि (२०० मि.ग्रा./४० मि.ग्रा.)
६ महिना देखि ५ वर्ष सम्म	२ बक्की	२.५ मि.लि.
		५ मि.लि.

घरैमा औषधि कसरी खुवाउने भनी आमालाई सिकाउनुहोस्

घरैमा खुवाउने प्रत्येक औषधिको बारेमा निम्न निर्देशहरूको अनुसरण गर्नुहोस् । साथै, हरेक औषधिको मात्रा-टेबुलमा दिइएका निर्देशहरूको पालना गर्नुहोस् ।

यदि बच्चालाई गहिरो ज्वरो (३८.५° वा सो भन्दा तापक्रम) आएमा पारसिटामोल दिनुहोस् ।

- ▶ **उच्च ज्वरो (> ३८.५° से) वा कान दुखेमा पारसिटामोल दिनुहोस्**
- ▶ ज्वरो र कान दुखेको निको नभएसम्म ६/६ घण्टामा पारसिटामोल दिनुहोस्

पारसिटामोल		
उमेर र तौल	चक्की (५०० मि.ग्रा.)	भोल (१२५ मि.ग्रा. प्रति ५ मि.लि.)
२ महिनादेखि ३ वर्ष (४-१४ के.जि.)	<input type="checkbox"/>	५ मि.लि.
३ वर्षदेखि ५ वर्ष (१४-१९ के.जि.)	<input type="checkbox"/>	७.५ मि.लि.

▶ भिटामिन 'ए' दिनुहोस्, ६ महिना वा सो भन्दा माथिका लागि

- ▶ दादुराको लागि २ मात्रा दिनुहोस्
- ▶ पहिलो मात्रा उपचार केन्द्रमा नै दिनुहोस्
- ▶ दोस्रो मात्रा भोलिपल्ट घरमा खुवाउनको लागि आमालाई दिनुहोस्
- ▶ कडा कुपोषण भएकालाई प्रेषण गर्नु पूर्व एक मात्रा दिनुहोस् ।
- ▶ ६ महिना भन्दा माथिको बच्चालाई उपचार केन्द्रमा नै एक मात्रा खुवाउनुहोस् ।
- ▶ दीर्घ भ्रूणपखाला भएको बच्चालाई उपचार केन्द्रमा नै एक मात्रा खुवाउनुहोस् ।
- ▶ ६ महिना देखि ५ वर्ष सम्मका बच्चाहरूलाई ६ ६ महिनामा भिटामिन ए खुवाउनु पर्दछ ।

उमेर	भिटामिन 'ए' क्याप्सूल २००,००० आई.यू.
६ महिनासम्म	x
६ देखि १२ महिनासम्म	<input type="checkbox"/> क्याप्सूल
१२ महिनादेखि ५ वर्षसम्म	१ क्याप्सूल

▶ आइरन दिनुहोस्

- ▶ प्रतिदिन १ मात्राको दरले १४ दिनसम्म दिनुहोस्

उमेर र तौल	उपचारको चक्की आइरन / फोलेट चक्की फेरस सल्ट २०० मि.ग्रा. + २५० माइक्रोग्राम फोलेट	आइरन / फोलेट सिरप फेरस फ्यूमोरेट र फोलेट एसिड मि.ग्रा प्रति ५ मि.लि (२० मि.ग्रा तात्विक आइरन प्रति मि.लि)
२ महिनादेखि ४ महिना (४-६ के.जि.)	-	१ ml
४ महिनादेखि १२ महिना (६-१० के.जि.)	-	१.५ ml
१२ महिनादेखि ३ वर्ष (१०-१४ के.जि.)	<input type="checkbox"/>	२ ml
३ वर्षदेखि ५ वर्ष (१४-१९ के.जि.)	<input type="checkbox"/>	२.५ ml

कडा कुपोषण भएका बच्चालाई आइरन चक्की नदिई प्रेषण गर्ने । IMAM कार्यक्रम लागू भएका जिल्लामा यसद्वारा उपचार गरिएको अवस्थामा आइरन र भिटामिन ए नदिनुहोस् ।

▶ अल्बेन्डाजोल दिनुहोस्

- यदि बच्चाको गत ६ महिनादेखि यता अल्बेन्डाजोल खाएको छैन भने उपचार केन्द्रमा ४०० मि.ग्रा. को अल्बेन्डाजोल चक्की एकै मात्रामा खुवाउनुहोस् ।
- बच्चाको उमेर १ वर्षदेखि २ वर्ष सम्मको छ भने आधा चक्की र २ वर्ष माथिका छ भने १ चक्की दिनुहोस् ।

सालवुटामोल	
उमेर	मात्रा : २ मि. ग्रा. चक्की
२ महिना देखि १२ महिना	१/२ चक्कीका दरले दिनमा ३ पटक ५ दिनसम्म
१ वर्ष देखि ५ वर्ष	१ चक्कीका दरले दिनमा ३ पटक ५ दिनसम्म

Diazepam मात्रा तालिका

उमेर वा तौल	डाइजेपाम १० मि.ग्रा/२ मि.लि. सोल्युसन मलद्वारमा दिने यदि अहिले कम्पन आईरेहेको छ भने ०.५ मि.ग्रा/कै.जि.का दरले
१० मिनेट पछि पनि कम्पन आईरेहेमा तलको तालिका अनुसार दिनुहोस्	
२ महिनादेखि ६ महिना (५ - ७ के.जि.)	०.५ मि.लि.
६ महिनादेखि १२ महिना (७ - १० के.जी.)	१.० मि.लि.
१२ महिनादेखि ३६ महिना (१० - १४ के.जि.)	१.५ मि.लि.
३६ देखि ६० महिना (१४- १९ के.जि.)	२.० मि.लि.

▶ रगतमा चीनीको मात्रा कम (Hypoglycaemia) हुनबाट जोगाउन उपचार गर्नुहोस्

- ▶ यदि बच्चाको आमाको स्तनपान गर्न सक्छ भने :

बच्चालाई स्तनपान गराउन भन्नुहोस्

- ▶ यदि बच्चाको स्तनपान गर्न सक्दैन, तर निलसम्म सक्छ भने :

६ महिना सम्मको शिशुको लागि आमाको दूध निचोरेर दिनुहोस् । ६ महिना भन्दा माथिको शिशुको लागि आमाको दूध निचोरेर वा गाई बस्तुको दुध खान दिनुहोस् । यस्तो कुनै पनि चिज पाइदैन भने चीनी-पानी खान दिनुहोस् । उपचार केन्द्रबाट जानुअघि ३०-५० मि.लि. दूध वा चीनी-पानी खान दिनुहोस् ।

चीनी-पानी बनाउन : २०० मि.लि. सफा पानीमा ४ चिया चम्बा (२० ग्राम) चीनी घोल्नुहोस् ।

- ▶ यदि बच्चाको निल्ल पनि सक्दैन भने :

यदि तपाईं तालिम प्राप्त हुनुहुन्छ भने ५० मि.लि. दूध वा चीनी-पानी नेजोग्यास्ट्रिक ट्युबद्वारा दिनुहोस् (शिशुको लागि ५ मि.लि./कै.जि.)

पखाला लागेकालाई थप भोलकुरा, जिङ्ग चक्की दिनुहोस् र खाना खुवाइरहनुहोस्
(खाना सम्बन्धी तस्वीरबारे 'परामर्श' तालिकामा हेनुहोस्)

▶ उपचार प्रणाली 'क': घर्दमा पखालाको उपचार गर्नुहोस्

घर्दमा गर्न पखालाको उपचार बारे ४ वटा नियमहरूको जानकारी आमालाई दिनुहोस् :
थप भोलकुरा दिने, खाना खुवाइरहने, जिङ्ग चक्की र उपचार केन्द्रमा कहिले कहिले भन्ने बारेमा परामर्श दिनुहोस् ।

- थप भोलकुरा दिनुहोस् (बच्चाले खान खोजेसम्म दिनुहोस्)
 - आमालाई सम्झाउनुहोस् :
 - भैरेपेट र हेरेकपेट लामो समयसम्म स्तनपान गराउनुहोस् ।
 - यदि बच्चालाई स्तनपान मात्र गराइएको छ भने स्तनपानकोसाथै अतिरिक्त पुनर्जलीय भोल वा सफा पानी पिउन पनि दिनुहोस् ।
 - यदि बच्चालाई स्तनपान मात्र गराइएको छैन भने निम्नमाथेबाट एक वा बढी कोल दिनुहोस्: पुनर्जलीय भोल, भातको माड, दालको भोल, गेडागुडीको भोल, दही वा सफा पानी ।

तलका अवस्थाहरूमा विरोध गरी पुनर्जलीय भोल दिनु अति जरूरी हुन्छ

- बच्चालाई प्रणाली 'ख' वा प्रणाली 'ग' अनुसार यस भेटमा उपचार गराएपछि ।
 - पखाला बढी भएमा बच्चालाई उपचार केन्द्रमा ल्याउन नसकिने ।
- हाल थोपेर पुनर्जलीय भोल कसरी बनाउने र खुवाउनेबारे आमालाई सिकाउनुहोस् (एक पुरिया १ लिटर मा एकै चोटै बनाई २४ घण्टा भित्र खुवाउनुहोस् ।) र २ पुरिया पुनर्जलीय भोल घरमा प्रयोग गर्नको लागि दिनुहोस् ।
 - संदाको जति भोलकुराको अतिरिक्त थप भोलकुरा वा पुनर्जलीय भोल कति खुवाउनु पर्छ सो बारे आमालाई देखाउनुहोस् ।
 - प्रत्येकपेट पातलो दिसा गरेपछि
 - २ वर्ष सम्मकालाई ५० देखि १०० मि.लि. र
 - २ वा २ वर्षभन्दा ठूलोलाई १०० देखि २०० मि.लि. पुनर्जलीय भोल

आमालाई बताउनुहोस् :

- कपचाट बारम्बार आँसु आँसु पिउन दिने ।
 - बान्ता रोपमा १० मिनेट पढने र फेरि बिस्तारै पिउन दिने ।
 - पखाला नथामाएसम्म अतिरिक्त भोलकुरा दिन जारी नै राख्ने ।
- जिङ्ग चक्की दिनुहोस् !
 - कुन मात्रामा जिङ्ग चक्की दिने भन्नेबारे आमालाई बताउनुहोस् :
 - २ देखि ६ महिनासम्मका बच्चाहरूलाई - आधा चक्की जिङ्ग १० मि.ग्रा. प्रत्येक दिन १० दिनसम्म
 - ६ महिनादेखि ५ वर्ष सम्मका बच्चाहरूलाई - एक चक्की जिङ्ग २० मि.ग्रा. प्रत्येक दिन १० दिनसम्म
 - जिङ्ग चक्की खुवाउनेबारे आमालाई सिकाउनुहोस् ।
 - १ वर्ष गुनका रिषु - एउटा सफा चन्चामा जिङ्ग चक्की राख्नुहोस्, त्यसमा केही बोपा सफा पानी अथवा आमको दूध अथवा पुनर्जलीय भोल राखेर केहीबेर घोलिन दिनुहोस्, घोलिएको चक्की पूरै बच्चालाई खुवाउनुहोस् ।
 - १ वर्ष देखि ५ वर्षसम्मका बच्चाहरू - माथि उल्लेख गरेको तरिका नै अपनाउन सिकाउनुहोस् अथवा बच्चाले जपार खान सक्छ भने जपार खुवाउन सिकाउनुहोस् ।

- खाना खुवाउन जारी राख्नुहोस्
 - पटक पटक स्तनपान गराउन आमालाई सम्झाउनुहोस् ।
 - ठोस आहार खान शुरु गरिसकेपछि भए त्यसमा खानाहरू खुवाई नै रहन सल्लाह दिनुहोस् ।
 - आमालाई उमेर अनुसार सिफारिस गरिएको खानाहरू खुवाउन सल्लाह दिनुहोस् ।
 - भाडापखाला रोकिई सकेपछि पनि तिने खाने कुराहरू दिनमा थप १ पटक र हप्तासम्म खुवाउन सल्लाह दिनुहोस् ।
- उपचार केन्द्रमा कहिले फर्कने
 - धेरै पटक पातलो दिसा गरेमा
 - तारन्तार बान्ता गरेमा
 - ज्यादै तिथिएमा
 - खान वा पिउन नसकेमा
 - ज्वरो आएमा
 - दिसामा रगत देखा परेमा

▶ प्रणाली 'ख' : केही जलवियोजनको उपचार पुनर्जलीय भोलबाट गर्नुहोस्

सिफारिस गरिएको पुनर्जलीय भोल उपचार केन्द्रमा निम्न अनुसारको परिमाणमा दिनुहोस्

उमेर	४ महिनासम्म	४ देखि १२ महिनासम्म	१२ महिनादेखि २ वर्षसम्म	२ वर्षदेखि ५ वर्षसम्म
तौल	६ के.जि. भन्दा कम	६-१० के.जि. भन्दा कम	१०-१२ के.जि. भन्दा कम	१२-१९ के.जि.
मि.लि. मा	२००-४००	४००-५००	५००-९६०	९६०-१६००

- पहिलो ४ घण्टाभित्र दिइने पुनर्जलीय भोलको परिमाण निम्नोक्त गर्नुहोस्
- बच्चको तौल घाल्न नपाएमा मात्र उमेर अनुसार मात्र निम्नोक्त गर्नुहोस् । पुनर्जलीय भोलको परिमाण निम्नोक्त गर्नुहोस् ।
 - के.जि. ५ मि.लि. को बन्ने गुणन गर्नुहोस् ।
 - यदि बच्चाले माथि तालिकामा देखाए, भन्दा बढी खान चाहेमा बढी दिनुहोस् ।
 - स्तनपान नगर्ने ६ महिनाभन्दा कम उमेरका शिशुलाई १००-२०० मि.लि. सफा पानी पनि यस अवधिमा पिउन दिनुहोस् ।
- पुनर्जलीय भोल कसरी दिने भनी आमालाई देखाउनुहोस् ।
 - कपचाट पटक पटक थोरे पिउन दिनुहोस् ।
 - बच्चाले बान्ता गरेमा १० मिनेट पढनुहोस्, अनि बिस्तारै फेरि पिउन दिनुहोस् ।
 - बच्चाले दूध खान चाहेमा स्तनपान पनि गराउन जारी राख्नुहोस् ।
- ४ घण्टापछि :
 - बच्चको अवशेषको पुनर्ब्याएकन र बर्गीकरण गर्नुहोस् ।
 - उपचार जारी राख्न उपयुक्त उपचार प्रणाली छान्नुहोस् ।
 - उपचार केन्द्रमा नै बच्चालाई खाना खुवाउन सिकाउनुहोस् ।
- यदि उपचार पूरा नहुँदा असा घर फर्कने पछि भने
 - घरेमा पुनर्जलीय भोल कसरी बनाउने र जिङ्ग चक्की कसरी खुवाउने भनी देखाउनुहोस् ।
 - ४ घण्टाको उपचार घरमा पूरा गर्न कति पुनर्जलीय भोल दिनुपर्छ आमालाई देखाउनुहोस् ।
 - पुनर्जलीय उपचार पूरा गर्न पछान्ने पुनर्जलीय भोलको पुरिया दिनुहोस् र प्रणाली 'क' मा बताएअनुसार थप २ पुरिया पुनर्जलीय भोल सँगै जिङ्ग चक्की पनि दिनुहोस् ।
- घर्दमा उपचार गर्दा अपनाउनु पर्ने ४ वटा नियम बताउनुहोस् ।
 - थप भोलकुराहरू दिनुहोस् ।
 - बच्चको उमेर अनुसार जिङ्ग चक्कीद्वारा उपचार गर्नुहोस् ।
 - खाना खुवाउन जारी राख्नुहोस् ।
 - उपचार केन्द्रमा कहिले मुकल फर्कने सल्लाह दिनुहोस् ।

Treatment of hypoglycaemia in children: If hypoglycaemia is detected (defined as <45mg/dl in older sick children >2 months), give IV bolus dose of 10% dextrose, in the dose of 2ml/kg BW for young infants, and 5ml/kg BW for older children. Recheck blood glucose after 30 minutes. If you cannot measure blood glucose, give bolus dose as above.

अनुगमन उपचार गर्नुहोस्

- ▶ अनुगमन भेटको लागि आउने बच्चाको हेरचाह पहिले गरिएको वर्गीकरणसँग मिल्ने सबै कोठाहरूको प्रयोग गरी जाँच गर्नुहोस् ।
- ▶ यदि बच्चासँग नयाँ समस्या पनि थपिएको भए मूल्यांकन र वर्गीकरण तालिकामा उल्लेख भएअनुसार त्यसको मूल्यांकन, वर्गीकरण र उपचार गर्नुहोस् ।

▶ न्यूमोनिया

तेश्रो दिनमा :

बच्चासँग सामान्यतया देखिने खतराका चिह्नहरूको जाँच गर्नुहोस् }
 शोकी वा सास फेर्ने कठिनाई चारे पुनर्मूल्यांकन गर्नुहोस् }
 सोध्नुहोस् }
 • एक मिनेटमा सास दर गन्ने }
 • कोखा हानेको हेर्ने }
 • स्टाईडर/ हुडीजड सुत्ने र हेर्ने }
 • बच्चाको ज्वरो कम भएको छ ? }
 यो जाँच गर्दा बच्चा शान्त भएको हुनुपर्छ

भाडास्पेखाको पुनर्मूल्यांकन गर्नुहोस् >मूल्यांकन र वर्गीकरण तालिका हेर्नुहोस् ।

सोध्नुहोस्:

- दिसा गर्ने पटक घट्यो छ ?
- दिसामा रगत कम देखिएको छ ?
- ज्वरो कम छ ?
- पेट दुखा कम छ ?
- बच्चाको खानामा रूचि बढेको छ ?

उपचार :

- ▶ यदि बच्चाको कोखा हानेको छ वा स्टाईडर छ वा सामान्यतया देखिने खतराका चिह्न छन् भने एम्पीसिलिन र जेन्टामाईसिन सुई दिनुहोस् अनि तुरुन्त अस्पताल प्रेषण गर्नुहोस् ।
- ▶ यदि बच्चाको सास दर, ज्वरो र खानाको रूचि उस्तै छ भने प्रेषण गर्नुहोस् (यदि यस बच्चासँग गत ३ महिनाभित्र दादुरा आएको रहेछ भने प्रेषण गर्नुहोस् ।)
- ▶ यदि बच्चाको सास दर र ज्वरो कम छ र खानामा रूचि बढेको छ भने सोही एन्टिबायोटिक ३ दिनको मात्रा पूरा गर्न भन्नुहोस् ।

▶ दीर्घ पखाला

५ दिनपछि :

- सोध्नुहोस्
- बच्चासँग पखाला लागेको रोकियो ?
 - दिनको कति पटक बच्चासँग पातलो दिसा गर्छ ?

उपचार

- ▶ यदि पखाला रोकिएको छैन (बच्चासँग अझै दिनको ३ पटक वा सो भन्दा बढी पातलो दिसा गर्दै छ) भने बच्चाको पुनर्मूल्यांकन गर्नुहोस् । आवश्यक उपचार गर्नुहोस्, अनि उपचार केन्द्रमा प्रेषण गर्नुहोस् ।
- ▶ यदि पखाला रोकिएको रहेछ, (बच्चासँग पातलो दिसा दिनको ३ पटकभन्दा कम गर्ने गरेको छ) भने बच्चाको उमेर अनुसार सिफारिश गरिएको खाना सदाभै खुवाउने आमासँग भन्नुहोस् ।

नोट: एच.आई.भि. संक्रमित/संसर्ग भएको बच्चाको नियमित सरसफाई र कोटिमोक्सोजोल प्रयोग चारे नियमित अनुगमन गर्ने । यदि कोटिमोक्सोजोलको सेवनले कडा असर जस्तो छालामा फोकाहरू आउने, चिलाउने भएमा यस औषधिको सेवन गर्न बन्द गरी बच्चासँग प्रेषण गर्ने ।

▶ आउँ रगत

तेश्रो दिनमा

भाडास्पेखाको पुनर्मूल्यांकन गर्नुहोस् >मूल्यांकन र वर्गीकरण तालिका हेर्नुहोस् ।

सोध्नुहोस्:

- दिसा गर्ने पटक घट्यो छ ?
- दिसामा रगत कम देखिएको छ ?
- ज्वरो कम छ ?
- पेट दुखा कम छ ?
- बच्चाको खानामा रूचि बढेको छ ?

उपचार :

- ▶ यदि बच्चासँग जलबियोजन देखिन्छ भने पुनर्जलयीन उपचार दिनुहोस् ।
- ▶ यदि दिसा गर्ने पटक, दिसामा रगतको परिमाण, ज्वरो, पेट दुखाइ वा खानाको रूची उस्तै वा भन्ने विपरीतको छ भने बच्चासँग प्रेषण गर्नुहोस् ।

यदि कच्चा

- १२ महिना भन्दा कम उमेरको भए वा
- प्रथम पटकको भेटमा जलबियोजनको अवस्था थियो भने वा
- विगत ३ महिनाभित्र दादुरा आएको थियो भने

- ▶ यदि दिसाको पटकमा कमी, दिसामा देखिने रगतको मात्रामा कमी, ज्वरोमा कमी, पेट दुखाइमा कमी र खानाको रूचि बढेको पाइएमा पहिलेकै औषधि पूरा ३ दिनको मात्रा पूरा गर्ने भन्नुहोस् ।

▶ एच.आई.भि. संक्रमित/संसर्ग भएको बच्चा

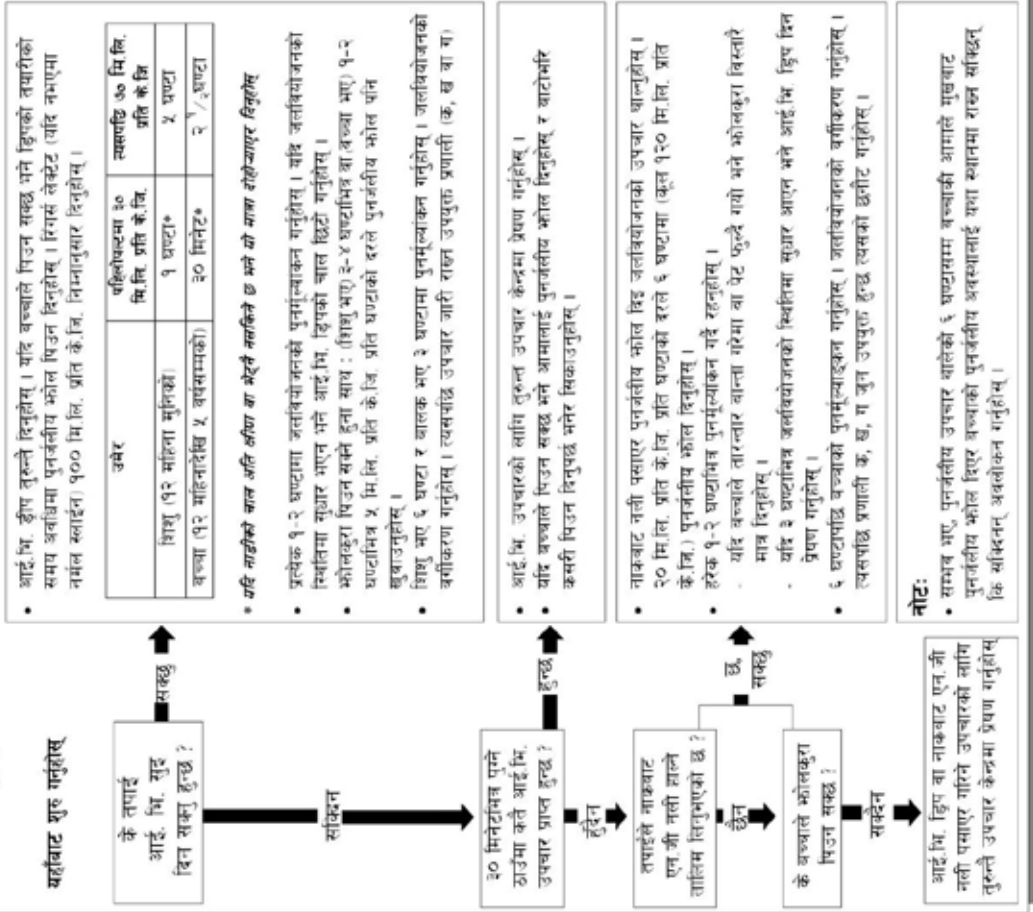
जन्म	नवजात शिशुलाई स्तनपान गराउनुको लागि परामर्श दिने
६ हप्तादेखि १४ हप्ता	६,१० र १४ हप्तामा खोप तालिका अनुसार अनुगमन गर्ने र स्तनपान गराउने जाँड दिने
१४ हप्तादेखि १ वर्ष	प्रत्येक महिनामा अनुगमन गर्ने
१ वर्ष भन्दा माथि	प्रत्येक ३/२ महिनामा अनुगमन गर्ने
१८ महिनामा	एच.आई.भि. एन्टिबडी परिक्षणको लागि प्रेषण गर्ने
यदि बच्चा विरामी भएमा	कुनै पनि समयमा अनुगमन गर्ने

पखाला लागेकालाई थप भोलकुराहरू विनुहोस् र खाना खुवाइरहनुहोस्

(खाना सम्बन्धी सल्लाहबारे 'गरामश' तालिकामा हेर्नुहोस्)

► उपचार प्रणाली 'ग' : कडा जलवियोजनको तुरुन्तै उपचार गर्नुहोस्

- ▶ तल देखाइए अनुसार स्थितिगत तौरहरू पढ्नुहोस् : ठुठ (साध/छ) भने तेलो र छुँन (सकिन्छ/छ) भने तलतिर लाग्नुहोस्



उपचार प्रणाली 'क', 'ख' र 'ग'

I.V. Fluids लाई थोपामा हिसाब गर्न

प्रतिमिनेट दिनुपर्ने थोपा = $\frac{\text{जम्मा Fluids को मात्रा ml मा}}{\text{समय मिनेटमा}} \times \text{IV Set मा हुने थोपा प्रति मि.लि}$

उदाहरण :
 ६ महिनाको ८ के.जि.को बच्चा/लाई २० थोपा प्रति मि.लि.को आई.भि. सेट प्रयोग गरी एक घण्टामा २४० मि.लि. र ५ घण्टामा ५६० मि.लि. दिनुछ । प्रति मिनेट कति थोपाको दरले दिनुपर्ला ?

एक घण्टामा ५६० प्रति मिनेट दिनुपर्ने थोपा = $\frac{२४०}{६०} \times २०$

पाँच घण्टामा प्रति मिनेट दिनुपर्ने थोपा = $\frac{५६०}{३००} \times २०$

= ३७ थोपा प्रतिमिनेट

बच्चा/लाई २० थोपा/मि.लि.को आई.भि. सेट प्रयोग गरी २४० मि.लि. १ घण्टामा सिध्याउन २० थोपा प्रति मिनेट र ५६० मि.लि. ५ घण्टामा सिध्याउन ३७ थोपा प्रति मिनेटका दरले दिनुपर्दछ ।

HIV/AIDS बाट बच्ने उपायहरू

- ▶ असुरक्षित यौन सम्पर्क नगर्ने,
 - ▶ संक्रमित रगत र संक्रमित तरल पदार्थ तथा निर्मलिकृत नगरेका औजारको प्रयोग नगर्ने,
 - ▶ HIV संक्रमित तर थाहा नभएको आमाले जन्माएको बच्चा, संक्रमित आमाले बच्चा जन्माउने बेला (Delivery), संक्रमित आमाबाट बच्चा/लाई स्तनपान गराउदा, HIV संक्रमित बच्चा/हरू को लागि ART औषधी उपचार केन्द्रले तोकिएको मात्रामा खुवाइरहन सल्लाह दिने ।
- HIV/AIDS सगोका व्यक्तिगत निम्न क्रियाकलाप गर्दा HIV/AIDS सक्ने**
- ▶ हात मिलाउँदा, अंगालो हाल्दा,
 - ▶ सँगै बस्दा, सँगै खाँदा,
 - ▶ एउटै पोखरीमा सँगै पौडी खेल्दा,
 - ▶ HIV/AIDS लागेको र नलागेको व्यक्तिलाई एउटै लामसुट्टेले टोक्दा

अनुगमन उपचार गर्नुहोस्

- ▶ अनुगमन भेटको लागि आउने बच्चाको हेरचाह पहिले गरिएको वर्गीकरणसंग मिल्ने गरी जाँच गर्नुहोस् ।
- ▶ यदि बच्चा नयाँ समस्या पनि थपिएको भए मूल्यांकन र वर्गीकरण तालिकामा उल्लेख भएअनुसार त्यसको मूल्यांकन, वर्गीकरण र उपचार गर्नुहोस् ।

▶ कानको सङ्क्रमण

५. दिनपछि

कानको समस्याको पुनर्मूल्यांकन गर्नुहोस्- मूल्यांकन र वर्गीकरण तालिका हेर्नुहोस्, बच्चाको ज्वरो नाजुहोस् ।

उपचार :

- ▶ यदि कान पछाडि दुखेगरी सुन्निएको रहेछ वा बढी ज्वरो (२८.५° से वा सोभन्दा बढी) आएको छ भने तुरुन्त उपचार केन्द्रमा प्रेषण गर्नुहोस् ।
- ▶ कानको एन्टिबायोटिकले अर्क ५ दिनसम्म उपचार गर्नुहोस् । कान सोसेर मुखमा पारी राख्नुहोस् । ५ दिनमा अनुगमनको लागि बोलाउनुहोस् ।
- ▶ कानको दीर्घ सङ्क्रमण : आमाले कानको पिप सोसेर मुखमा पार्ने प्रक्रिया ठीकसग गर्दिछन् कि गर्दिनन् निर्दिष्ट गर्नुहोस् र सो काम अटुट रूपमा गर्दै रहन प्रोत्साहित गर्नुहोस् र २ हप्तासम्म सित्रोफ्लोक्सासिन कानमा राख्ने औषधी राख्न भन्नुहोस् ।
- ▶ यदि कानको दुखाइ छैन र कानबाट पीप बगेको छैन भने आमाले गरेको कामको प्रशंसा गर्नुहोस् । यदि उनले ५ दिनसम्म खुवाउनु पर्ने एन्टिबायोटिक सकेकी रहिन्छिन् भने ५ दिनको औषधि पूरा गर्न लगाउनुहोस् ।

▶ खाना सम्बन्धी समस्या

५. दिनपछि

खानाको मूल्यांकन गर्नुहोस् । 'परामर्श' तालिकाको विवरणमा लेखिएका प्रश्नहरू हेर्नुहोस् । पहिलो पटक आउंदा खाना सम्बन्धी केही समस्या थियो कि सोच्नुहोस् :

- ▶ खाना सम्बन्धी कुनै नयाँ वा भैरहेका समस्याहरूबारे आमालाई सल्लाह दिनुहोस् । यदि तपाईंले खानामा महत्वपूर्ण परिवर्तन गर्नको लागि आमालाई सल्लाह दिनुहुन्छ भने बच्चालाई फोँर पनि ल्याउन भन्नुहोस् ।
- ▶ यदि बच्चाको उमेर अनुसार धेरै कम तौल छ भने बच्चाको तौल नाप्नको लागि पहिलो पटक आएको २० दिनपछि बच्चालाई ल्याउने सल्लाह दिनुहोस् ।

▶ रक्त अल्पता

१४ दिनपछि

- ▶ आइरन चककी दिनुहोस् । आमालाई फोँर अर्क थप आइरन चककी लिन १४ दिनमा आउन भन्नुहोस् ।
- ▶ प्रत्येक १४-१४ दिनमा आइरन चककी २ महिनासम्म अटुट रूपमा दिनुहोस् ।
- ▶ दुई महिनापछि पनि हल्केलाको सेतोपना गएन भने मूल्यांकनको लागि प्रेषण गर्नुहोस् ।

▶ धेरै कम तौल

३० दिन पछि :

बच्चाको तौल लिनुहोस् र उमेर अनुसार अर्कै बच्चाको धेरै कम तौल छ कि निर्धारण गर्नुहोस् । खानाको पुनर्मूल्यांकन गर्नुहोस् । 'परामर्श' तालिकाको विवरणमा लेखिएका प्रश्नहरू हेर्नुहोस् ।

उपचार :

- ▶ यदि उमेर अनुसार बच्चाको धेरै कम तौल रहेनछ भने आमालाई स्याबाकी दिनुहोस् र खाना जारी राख्न प्रोत्साहित गर्नुहोस् ।
- ▶ यदि उमेर अनुसार अर्कै बच्चाको धेरै कम तौल छ भने खाना सम्बन्धी भेटिएका कुनै पनि समस्याबारे आमालाई परामर्श दिनुहोस् । आमालाई एक महिनामा आउन भन्नुहोस् । बच्चाको राम्रो तरीकाले खाना नखाउनुजेल र तौल लगातार नबढेसम्म वा उमेर अनुसार धेरै कम तौल भएसम्म प्रत्येक महिना बच्चालाई हेर्न जारी राख्नुहोस् ।

अपवाद :

यदि तपाईंको विचारमा बच्चाको खानामा सुधार हुन सक्दैन वा बच्चाको तौलमा कमी हुँदै गयो भने उपचार केन्द्रमा प्रेषण गर्नुहोस् ।

कहिले तुरुन्त फर्कने, आमालाई सल्लाह दिनुहोस् ।
(‘आमालाई परामर्श’ तालिका हेर्नुहोस्)

NATIONAL NUTRITION PROGRAMME AND NUTRITION DISORDERS

Malnutrition is a serious health problem: it contributes to approximately 60% of child deaths in Nepal.

1. CAUSES OF MALNUTRITION

The term malnutrition covers a range of short- and long-term conditions:

Caused by lack of nutrients:

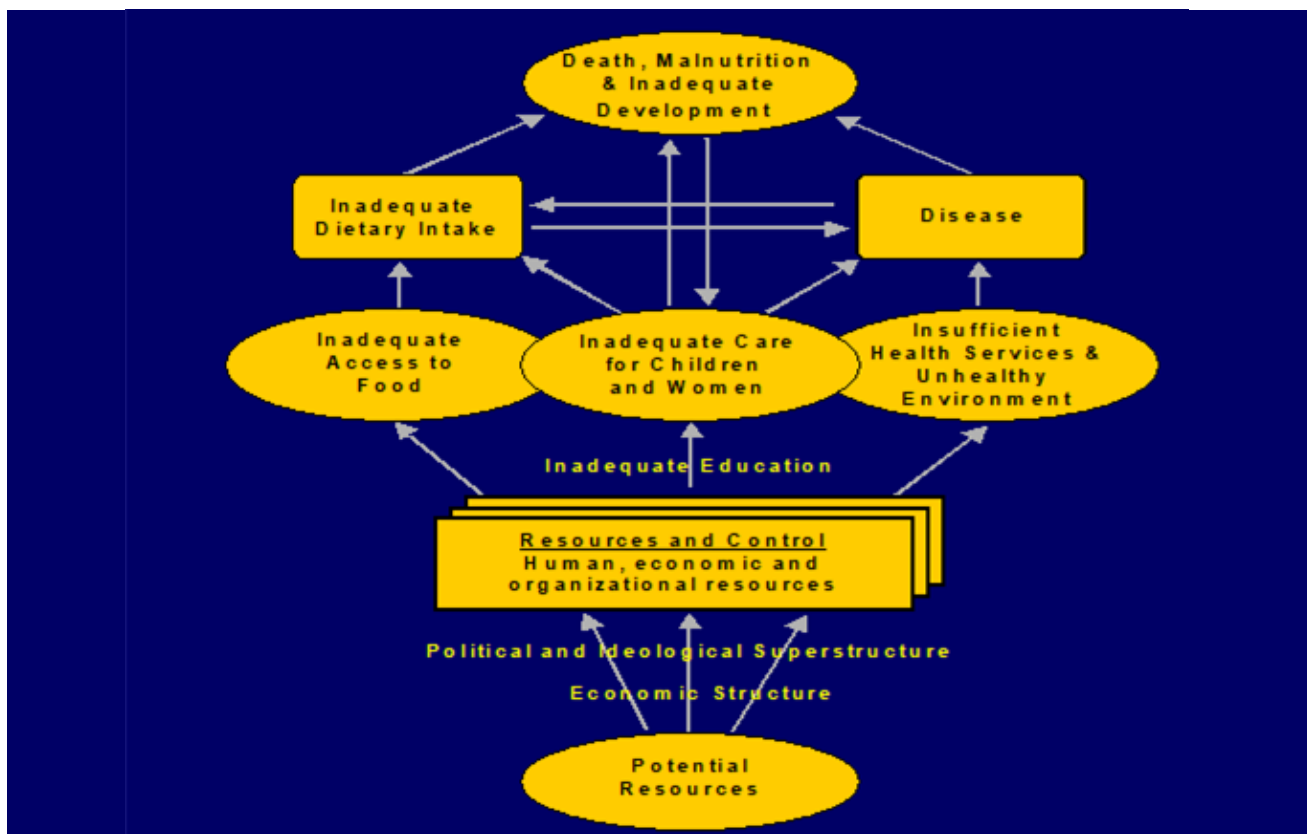
1. Wasting and nutritional oedema (acute malnutrition)
2. Stunting (chronic malnutrition)
3. Intrauterine Growth Restriction (IUGR) leading to low birth weight
4. Micronutrient deficiencies

Caused by excess of nutrients:

5. Overweight/obesity (overnutrition).

These conditions, including over- and undernutrition, may occur in isolation within an individual or in combination.

The causes of malnutrition are summarised below: (UNICEF conceptual framework):



2. ACUTE MALNUTRITION

A. THE STAGES OF MALNUTRITION

1. MILD malnutrition: Child's immune system is less robust and s/he is therefore more likely to get recurrent infections, which may lead to further delay in growth. Detecting mildly malnourished children and giving adequate treatment and advice can PREVENT more serious malnutrition and health problems.

2. Global Acute Malnutrition (GAM):

- a. **MODERATE Acute Malnutrition (MAM) is an ILLNESS:** this child's immune system is not functioning well, and the child is likely to be anaemic and have problems digesting food. The child may have reduced appetite – this is a danger sign. The child may have underlying chronic infections.
- b. **SEVERE Acute Malnutrition (SAM):** remember that any child with oedema is considered as severely malnourished.
 - i. SAM (criteria given below) without complications: Outpatient care
 - ii. SAM with complications – Is life-threatening. NEEDS REFERRAL FOR ADMISSION TO HOSPITAL with a specialised feeding centre

SAM can take two main forms:

- Marasmus, which is severe wasting (visible loss of muscle mass),
- Kwashiorkor, which is malnutrition with bilateral oedema and sometimes ascites (swelling of the abdomen).

B. ASSESSMENT OF DEGREE OF MALNUTRITION

Malnutrition is best identified by measuring the height and weight of the child and comparing these on a chart. Perform clinical examination and check both weight for height and weight for age, along with other parameters below:

- Determine the correct age of the child
- Check the Mid-upper Arm Circumference (MUAC) for children aged between six months and five years
- For infants <6 months there are no MUAC criteria – use “weight for age” chart and look for wasting
- Weigh the child: use a “weight for age” chart to check Z score
- Measure height
- If the child is able to stand, you can use a wall-mounted “weight for height” chart (removing shoes/sandals if worn) – this chart is more accurate for the older child, especially if there is uncertainty regarding the child's exact age. (However, remember that the weight for height chart only identifies children who are too thin, and will not detect those that are too short for their age, i.e. stunted, which is also a big problem in Nepal)
- Check for nutritional oedema
- If weight is low for age, conduct “appetite test” (test dose of Ready-to-Use Therapeutic Food (RUTF))
- Take medical history, assess presence of any medical complications
- Check vaccination status, last deworming and last vitamin A dosing.

MODERATE Acute Malnutrition (MAM):

- Weight for height 70–85% of median or Z Score -2 or less, but >-3
- MUAC 11.5–12.5cm in a child between six months and five years

AND

- Clinically well
- No oedema
- No medical complications (see below)
- With appetite (able to eat RUTF)

SEVERE Acute Malnutrition (SAM) without complications:

Any ONE of the following in the context of malnutrition:

- Weight for height <70% of median, or Z Score <3
- MUAC <11.5cm in a child between six months and five years
- Nutritional Oedema + or ++

AND

- No medical complications (see below)
- With appetite (able to eat RUTF)

Life-threatening SAM (with complications): This needs inpatient treatment:

Classified as severe malnutrition with medical complications, if one of the followings present:

<ul style="list-style-type: none"> • Nutritional Oedema +++ • No appetite/unable to eat RUTF • Fever >38.5°C/101.5°F or hypothermia • Raised RR and chest indrawing • Severe diarrhea and dehydration • Severe anaemia (Hb <7g/dl) • Apathy/unconsciousness or convulsions • Intractable vomiting (vomits everything). 	<ul style="list-style-type: none"> • The child has had convulsions/is unconscious, is apathetic/lethargic/not alert • Severe skin or eye infection.
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C. MANAGEMENT OF MALNUTRITION

C.1. MODERATE ACUTE MALNUTRITION (MAM) WITHOUT COMPLICATIONS

The most important treatment for malnutrition is improving nutrition – increasing the proportion of high-caloric and high-protein foods, and increasing the frequency of feeding, which means offering food six to eight times a day.

In order to counsel the mother, you need to find out what the child is currently eating on an average day. Then you can advise how to improve on this. Remember to advise sarbottam pitho for young children (under three years) and to stress the importance of animal protein (milk, eggs, meat) and green leafy vegetables.

Where available, arrange for Micronutrient Powder (MNP – remember not to give both MNP and RUTF at the same time), and a Supplementary Feeding Programme (SFP) with Fortified Blended Food (FBF) – e.g., Super flour/litto. (In highly food-insecure areas, supplementary feeding is also available for the mother.)

Recipe for Locally Made Supplementary Foods:

220g per child per day	Option n. 1: <i>Sarbottam Pitho</i> *	Option n. 2: <i>Sarbottam Pitho</i> *
50g/2 mutthi	Soy bean	Soy bean
25g/1 mutthi	Maize flour	Wheat flour
25g/1 mutthi	Wheat flour	Rice
100g/tea glass	Cows' milk/liver	Cows' milk/liver
10g/½ mutthi	Sugar	Sugar
10g/½ mutthi	Ghee or vegetable oil	Ghee or vegetable oil

* Add green vegetable as available

75g per child per day	Option n. 3: <i>Poshilo Jaulo</i>
25g/1 mutthi	Rice
15g/ small mutthi	Khesari dal
10g/½ mutthi	Clarified butter
25g/1 mutthi	Pumpkin leaves

Advice to parents:

- Provide milk with oil and sugar to provide high energy
- Frequent feeding with nutritious diet
- Encourage breastfeeding
- Immunise child according to schedule, make sure up-to-date with vitamin A and albendazole
- Wrap the child with blankets/carry against body if he/she is cold.

Follow up at least every two weeks: check MUAC, weight and oedema and ask about feeding and appetite.

Refer to the nearest Inpatient Therapeutic Feeding Centre (ITFC) in case there is:

- A new complication
- Loss of appetite
- Increased or new oedema
- No increase in weight for five weeks
- Weight loss for three weeks (two consecutive weighing at weekly follow-up).

C.2. TREATING MAM WITH OEDEMA AND SAM WITHOUT COMPLICATIONS

Children aged 6–59 months with MAM and nutritional oedema and children with SAM without complications are eligible for therapeutic feeding in an Outpatient Treatment Centre (OTC). The mainstay of treatment is RUTF, an energy-dense food enriched in minerals/vitamins nutritionally equivalent to F100. It is a peanut-butter paste combined with skimmed milk powder, icing sugar, vegetable oil, emulsifier, Vitamins and Antioxidant; thus, it is microbiologically safe and can be kept for months in appropriate packaging. Before enrolling a child to outpatient therapeutic feeding, it is important to perform an appetite test, to ensure that the child can be fed at home.

How to do the appetite test? (child must be 6 months old or above)

- The appetite test should be conducted in a separate quiet area.
- Explain to the caregiver the purpose of the appetite test and how it will be carried out.
- The caregiver should wash her hands.
- The caregiver should sit comfortably with the child on her/his lap and either offer the RUTF from the packet or put a small amount on her/his finger and give it to the child.
- The caregiver should offer the child the RUTF gently, encouraging the child all the time. If the child refuses then the caregiver should continue to quietly encourage the child and take time over the test.
- The test usually takes a short time but may take up to one hour.
- The child must not be forced to take the RUTF.
- The child needs to be offered plenty of water to drink from a cup as he/she is taking the RUTF.

The result of the appetite test

Pass:

A child who takes at least the amount shown in the table passes the appetite test.

Fail:

A child who does not take at least the amount of RUTF shown in the table should be referred for inpatient care.

If the appetite is good during the appetite test and the rate of weight gain at home is poor then a home visit should be arranged

The MINIMUM amount of RUTF sachets that should be taken is shown in the table

WEIGHT	SACHETS (APPROX 90G)
4 - < 7 kg	¼ to ⅓
7 - < 10 kg	⅓ to ½
10 - < 15 kg	½ to ¾
15 - < 30 kg	¾ to 1
>30kg	> 1

Amount of RUTF to feed and take home in OTC*

92g (1 sachet) has 500Kcal (average amount to feed: 200kcal/kg BW/day)					
Weight of child (kg)			Ration per week (No. of Sachets)	Ration per day (No. of Sachets)	Consumption per day (No. of sachets)*
3.5	-	3.9	14	2	1.5
4	-	5.4	14	2	2
5.5	-	6.9	21	3	2.5
7	-	8.4	21	3	3
8.5	-	9.4	28	4	3.5
9.5	-	10.4	28	4	4
10.5	-	11.9	35	5	4.5
> 12			35	5	5

Give small amount every 3 hours (day and night), with water to drink

* Since open packages should not be kept overnight in case of rats and other infestations, the number of sachets has been rounded up for the take-home rations.

Medication:

All children who are receiving therapeutic feeding should also receive the following medications: vitamin A, antibiotics (amoxicillin), albendazole, and measles vaccination; also Chloroquine (CQ) and primaquine if in a malaria area. See below for doses:

Routine Medicines for Outpatient Therapeutic Care*

Drug/ supplement	When	Age/weight	Prescription	Dose
VITAMIN A**	At admission (EXCEPT children with oedema)	<6 months***	50,000 IU	Single dose (for children with oedema single dose on discharge)
		6–12 months	100,000 IU	
		>12 months	200,000 IU	
		Do not use with Oedema		
AMOXICILLIN	At admission	All SAM cases	<10kg 125mg TDS	TDS a day for 7 days
			>10kg 250mg TDS	
CQ & PRIMAQUINE	At admission in malaria areas (Terai)	All SAM cases	See Chapter XIV, Section 2 (dosage charts)	OD for 3 days (on admission)
ALBENDAZOLE	Second visit	<12 months	DO NOT GIVE	None
		12–23 months	200mg	Single dose, on second visit
		>24 months	400mg	
MEASLES VACCINATION	On week 4	6–8 months	DO NOT GIVE until they are at least 9 months of age	Single dose; when they reach 9 months old and after at least 4 weeks in OTC
		>9 months	Standard	Single dose

*For children referred from inpatient stabilisation a check should be made of the treatments already received and the above adapted accordingly

** Vitamin A: Do not give if the child has already received vitamin A in the last month. Do not give to children with oedema until discharged from OTC, unless there are signs of vitamin A deficiency

Optional:

Folic Acid: 1mg per day for two weeks; In Nepal only 5mg tablets are available, so give ½ Tab every other day for two weeks

Iron: only after 14 days; if anaemic – check Hb in every malnourished child

Zinc: on second visit; according to age, treat for 10 days (supports immune system) especially if also recent diarrhoea

Vitamins B and C: may be given at later visits, unless child has access to MNP

Both iron and Zinc can cause nausea; therefore, do not give if the child already has low appetite.

Vitamin B dose:

<1yr: 5ml BD

>1yr: 10ml BD

Vitamin C:

<1yr: 1 500mcg Tab OD (ground and dissolved in food/drink)

>1yr: 1 500mcg Tab BD

Key messages for mothers/caretakers

- Explain how much RUTF to give the child each day (refer to RUTF ration table)
- If the mother is still breastfeeding, advise her to continue breastfeeding as before and give RUTF. If she is not breastfeeding, then always give plenty of safe water (boiled and cooled/filtered) with RUTF as it does not contain any water itself
- The RUTF is all the food a child needs to recover. No other foods should be given until the full ration each day has been finished
- Encourage the child to take small amounts of RUTF frequently during the day, eating directly from the packet
- Whenever possible, wash the child's hands and face before eating and after defecation
- RUTF is a special food as medicine for thin and swollen children. It should never be shared with other members of the family
- If concerned about the child's condition, tell the mother/caretaker to bring them straight back to the health facility. For example, if the child is not eating, vomiting, is sick, has diarrhoea, or if oedema is increasing, the child should be taken immediately direct to the health facility for medical review and advice
- Attend the health centre weekly for monitoring and to receive more RUTF supplies
- Malnourished children need to be kept warm (ensure child wears plenty of clothes).

Note: Always ask the mother/caretaker to repeat back how s/he will feed the child and give any medicines at home.

Follow up weekly, check MUAC, weight and oedema and ask about feeding and appetite; re-calculate dose for RUTF.

C.3. REFERRING SAM WITH MEDICAL COMPLICATIONS

Severe malnutrition is an acute life-threatening illness. Children who are identified as having SAM should first be assessed with a full clinical examination to confirm whether they have medical complications and whether they have an appetite. Children who have appetite (pass the appetite test) and are clinically well and alert should be treated as outpatients. Children who have SAM with medical complications should be referred.

The three main risks are hypoglycaemia, hypothermia and dehydration/shock.

1. Treat/prevent hypoglycaemia: defined as blood glucose <54mg/dl. If no testing strips are available then assume the child is hypoglycaemic and treat: 5ml/kg BW of 10% dextrose (orally or via NG tube) and start feeds 30 minutes later; ONLY if the child is unconscious or fitting, give 5ml/kg BW 10% dextrose IV.
2. Treat/prevent hypothermia: hypothermia is defined as a rectal temperature <35.5°C (<95.9°F) Manage by warming the child by skin-to-skin contact with mother (KMC), blankets, and indirect heat from a heater.
3. Treat/prevent dehydration and shock: shock is diagnosed according to the following criteria – lethargic/unconscious child PLUS cold hands PLUS CRT >3s (or weak/fast pulse, with tachycardia defined as >160/min in children aged 2–12 months and >140/min in children aged 1–5 years).

Management: oxygen (if available), keep child warm and start oral fluids by NG tube (avoid IV fluids if possible). If there is no improvement after fluids then diagnose septic shock, and start IV antibiotics.

REFER URGENTLY

3. GROWTH MONITORING AND PROMOTION (GMP) OF UNDER 2 YEARS

Growth Monitoring is the regular measurement of a child's weight and height to monitor his/her growth. All children should be monitored for their growth in terms of weight gain, starting from birth to 23 months.

The growth-monitoring card (also called Road to Health (RTH) Card- see Annex 3) is a tool to detect growth problems. The child's weight (kg) is plotted against the age (age in months) on the gender specific (girl or boy) growth-monitoring card at intervals to form a growth curve. The weight of the child should also be recorded in the nutrition register against the age of child for keeping and reporting growth-monitoring records.

The colour gradient in the growth-monitoring card helps to diagnose the nutrition status of the child: green indicates the child is well nourished or only mildly low weight, Yellow indicates the child is moderately malnourished and at risk of becoming severely malnourished and Red indicates the child is severely malnourished and in "Danger", needing immediate attention.

Procedures to manage normal, moderate underweight and severe underweight children

Category of nutrition status	Action/advice
Green (normal or mildly underweight)	• Praise parents for maintaining good nutrition
	• Continue weighing child as per protocol
	• Encourage mothers to exclusively breastfeed up to six months of age and introduce semi-solid soft food with diet diversity from six months onwards
Yellow (moderately underweight)	• Ask parents about the causes of decrease in weight (e.g. Is child suffering from any disease, what are you feeding child, how many times do you feed child, what kinds of food do you feed?)
	• Ask to give more frequent nutritional food, ask to get treatment for disease if suffering, continue weighing children as per protocol
	• Treat the child as per MAM protocol above
Red (severely underweight)	• Warn parents that the child is in danger and needs immediate attention
	• Ask about the causes of decrease in weight (example: Is child suffering from any disease, what are you feeding child, how many times do you feed child, what kinds of food do you feed?)
	• Refer urgently to Outpatient Therapeutic Programme (OTP)/Nutrition Rehabilitation Home (NRH)/hospital if medical complications are also present

4. INFANT AND YOUNG CHILD FEEDING

Breastfeeding provides ideal nutrition and is sufficient to support optimal growth and development for the first six months after birth. Thereafter, babies should be given nutritious complementary foods and breastfeeding should be continued up to the age of two years or beyond.

Exclusive breastfeeding up to the age of six months

- Exclusive breastfeeding means that the baby is not given any other milk or food apart from breast milk from the moment of its birth to the age of about six months. The baby should be fed on demand, and at least eight times in 24 hours
- Thereafter, babies should be given nutritious complementary foods and breastfeeding should be continued up to the age of two years or beyond. One of the best weaning foods in Nepal is "Litto" made from sarbottam pitho – a flour made out of two parts roasted cereal and two parts roasted pulses

- Continue to breastfeed the child on demand
- Babies SHOULD NOT be bottle fed unless there is no other option.

Do not over-feed

In urban areas, where children have more access to processed foods and sweets, and where they are less physically active, obesity is becoming a problem.

- Ensure that children are physically active
- Ensure a balanced healthy diet with three main meals and two snacks in between for children under five, and three meals plus one snack for older children
- Avoid sweets, snacking in between meals, especially starchy or sugary snacks (such as cakes, instant noodles, crisps, biscuits, chocolates)
- Give children only water if they are thirsty; do not routinely give children sugary drinks (juice, or soft drinks like Fanta, Sprite, and Coke).

Do not force young children to eat

Many young children, especially in urban contexts, start refusing food after weaning and parents find it very difficult to feed them enough to maintain healthy weight. This is a behavioural/psychological problem and gets worse as the parents get more stressed about it: After a while the child finds food time so stressful that it becomes almost impossible to feed it.

Typical pattern:

- Child shows no interest in food
- Child refuses to eat certain foods
- Child needs distraction while eating (such as video/mobile phone/second person)
- Child takes a long time to eat at each meal
- Parents get stressed about meal times
- Typically, children do eat at other relatives' house or at school
- These children may actually be too small for their age.

Advice to prevent or improve this problem:

1. DO NOT feed the child (children over nine months of age and even younger can feed themselves, if given appropriate foods)
2. DO NOT force feed the child – offer an appropriate amount of food, but do not try to persuade the child to eat all of it or more than it wants
3. DO NOT replace food – if the child does not eat what you have offered, do not try to find something else it will eat
4. DO NOT offer extra food between set mealtimes if you feel the child has not eaten enough – it is better to have set times, and allow the child to become hungry in between
5. DO NOT USE MOBILE PHONES OR iPADS at mealtimes to distract the child! This will cause problems for many years to come
6. DO NOT allow the child to drink large volumes before mealtimes (this will fill its stomach and make it less hungry)
7. DO offer a variety of healthy foods four to six times a day, ideally usually the same foods as you eat yourself, and allow the child occasional treats
8. DO try to have most mealtimes at the same time as the child/share meals, or even better, feed several young children together
9. DO limit mealtimes – take any leftover food away after a set time (15–20 minutes)
10. Above all: DO NOT get stressed about feeding your child: A healthy child offered enough food will eat and grow, but if mealtimes become a time of stress and family tension, this may affect the child's eating habits for life.

FEEDING RECOMMENDATIONS

Up to six months

All mothers should be counselled and supported to exclusively breastfeed their infants for the first six months



- Immediately after birth, put your baby in skin to skin contact with you.
- Breastfeed as often as the child wants, day and night.
- Feed young infants at least 8 times in 24 hours.
- Do not give other foods or fluids, not even water.
- Wake the baby for feeding after 3 hours, if baby does not wake self.

6 months up to 12 months

- Continue to breastfeed as often as the child wants.
- If the baby is not breastfed, give formula. If the baby gets no milk, give 5 nutritionally adequate complementary feeds per day.
- Start giving foods rich in iron and then soft porridge and mashed vegetables and fruit.
- Start with 1 to 2 teaspoons twice a day and gradually increase the amount and frequency of feeds.
- Children between 6-8 months should have two meals a day, by 12 months this should have increased to 5 meals per day.
- Give a variety of locally available food. Examples include egg (yolk), beans, dhal, meat, fish, chicken / chicken livers, mopani worms.
- For children who are not growing well, mix margarine or oil with porridge.
- Fruit juices, tea and sugary drinks should be avoided before 9 months of age.



12 months up to two years

- Continue to breastfeed as often as the child wants.
- If no longer breastfeeding, give 2 to 3 cups of full cream milk every day.
- Give at least 5 adequate nutritious family meals per day.
- Give locally available food rich in protein at least once a day. Examples include egg, beans, dhal, meat, fish, chicken / chicken livers, mopani worms.
- Give fresh fruit or vegetables twice every day.
- Give foods rich in iron, and vitamins A and C (see examples below).
- Feed actively from the child's own bowl.
- Also give the child clean water to drink during the day (boil and cool the water if there is any doubt about the safety/cleanliness of the water).



Above 2 years

- Give the child his/her own serving of family foods 3 times a day.
- In addition, give 2 nutritious snacks such as bread with peanut butter, full cream milk or fresh fruit between meals.
- Continue active feeding.
- Ensure that the child receives foods rich in iron and Vitamins A and C.



IRON RICH FOODS

- Meat (especially kidney, spleen, chicken livers), dark green leafy vegetables, legumes (dried beans, peas and lentils).
- Iron is absorbed best in the presence of vitamin C.
- Tea, coffee and whole grain cereal interfere with iron absorption.

VITAMIN A RICH FOODS

- Vegetable oil, liver, mango, pawpaw, yellow sweet potato, Full Cream Milk, dark green leafy vegetables e.g. spinach / imfino / morogo.

VITAMIN C RICH FOODS

- Citrus fruits (oranges, naartjies), melons, tomatoes.

A good daily diet should be adequate in quantity and include an energy-rich food (for example, thick cereal); meat, fish, eggs or pulses; and fruits and vegetables.

COW'S MILK

- Cow's or other animal milks are not suitable for infants below 6 months of age (even modified).
- For a child between 6 and 12 month of age: boil the milk and let it cool (even if pasteurized).
- Feed the baby using a cup

Encourage feeding during illness

Recommend that the child be given an extra meal a day for a week once better.

5. MICRONUTRIENT SUPPLEMENTATION AND DEWORMING

5. A. FOOD FORTIFICATION WITH MNP (BAALVITA)

The MoHP initiated the community promotion of Infant and Young Child Feeding (IYCF), linked with home fortification with MNP (baalvita), as a short- to medium-term strategy to reduce the high burden of anaemia, especially among 6–23-month-old children. The objective of the IYCF-MNP programme is to improve complementary feeding practices (timely introduction, frequency and diversity) and to reduce prevalence of anaemia among young children aged 6–23 months through home fortification with MNP.

Protocol: The distribution protocol for each round of distribution is 60 Sachets (two boxes) of MNP. The child consumes one sachet of MNP every day. MNP (baalvita) is thoroughly mixed with complementary food like “Litto” or “Jaulo” and the fortified food is then fed to the children. Every child aged 6–23 months receives MNP for three rounds: the first round of 60 sachets once the child completes six months, the second once the child completes 12 months and the third once the child completes 18 months. Hence 180 sachets (six boxes) of MNP are distributed within the age period of 6–23 months. Once the child has consumed 60 sachets of MNP over two-month period, there will be a gap of four months before the next round of MNP is introduced. If for any reason the child misses their MNP one day, the course should be continued from the next day onwards, and will therefore finish a day later.

The intake of multiple micronutrients might lead to “loose” or black stools, owing to the iron content of MNP; this is normal and the symptoms will subside after a few days of continuous consumption.

5. B. PREVENTION AND TREATMENT OF VITAMIN A DEFICIENCY is done through:

- Biannual vitamin A distribution
- Routine distribution of Vitamin A Capsules (Caps) to children at six months
- Treatment of vitamin A deficiency.

a. Biannual Vitamin A Distribution

Every year, all children aged 6–59 months will receive a high dose of vitamin A supplements and deworming medicine as per the protocol below:

Schedule for biannual vitamin A distribution

Age	6–7 Baisakh (19–20 April)		2–3 Kartik (19–20 October)	
	Cap Vitamin A	Deworming	Cap Vitamin A	Deworming
Children Aged 6–11 months	100,000 IU		100,000 IU	
Children Aged 12–23 months	200,000 IU	200mg albendazole (half Tab)	200,000 IU	200mg albendazole (½ Tab)
Children Aged 24–59 months	200,000 IU	400mg albendazole	200,000 IU	400mg albendazole

b. Routine Distribution of Cap Vitamin A to Children at the age of 6 months

Children will receive their first dose of vitamin A supplementation through routine contact at the age of 6 months following the protocol as below:

- If the child is less than six months old during the time of vitamin A distribution (April/October each year), s/he will be dosed with the 100,000 International Unit (IU) vitamin A supplements in the nearest health facility, or by a Female Community Health Volunteer, immediately after the date on which the child reaches the age of 6 months
- If the child fails to receive vitamin A supplement before the age of 9 months, s/he will be dosed with vitamin A supplements during the routine measles vaccination
- The period between the first and second doses of vitamin A supplements will be at least one month (30 days) and this gap will not be reduced during the supplementation.

c. Vitamin A Deficiency Treatment Protocol:

Vitamin A supplementation to children aged six to 59 months

Case	6 months to below 1 year		Children 12 to 59 months	
Xerophthalmia (night blindness, Bitot's spot, keratomalacia)	First Day	One dose vitamin A 1,00,000 IU	First Day	One dose vitamin A 200,000 IU
	Second Day	One dose vitamin A 100,000 IU	Second Day	One dose vitamin A 200,000 IU
	One month after	One dose vitamin A 100,000 IU	One month after	One dose vitamin A 200,000 IU
Measles	First Day	One dose vitamin A 100,000 IU	First Day	One dose vitamin A 200,000 IU
	Second Day	One dose vitamin A 100,000 IU	Second Day	One dose vitamin A 200,000 IU
SAM	One dose upon diagnosis of SAM case	One dose vitamin A 100,000 IU	One dose upon diagnosis of SAM case	Vitamin A 200,000 IU
Prolonged diarrhoea: continuous for 14 days or more	One dose upon diagnosis of prolonged diarrhoea case	One dose vitamin A 100,000 IU	One dose upon diagnosis of prolonged diarrhoea case	Vitamin A 200,000 IU

100,000 IU = ½ Cap

200,000 IU = 1 Cap

Vitamin A supplementation to postpartum mother

Postpartum Mother	One dose only	Cap vitamin A with 200,000 IU
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5. C. IRON-DEFICIENCY ANAEMIA

50% of anaemia worldwide is caused by iron deficiency.

Common causes of Iron-deficiency Anaemia (IDA):

- Inadequate intake of iron from daily diet
- Inadequate absorption of dietary iron
- Infestations such as hookworms and malaria
- High requirements of iron, particularly during growth and pregnancy
- Blood loss (menstruation, and injury).

a. Anaemia in Children**Evaluation of anaemia**

Common findings in history and physical examination one should look for are listed below:

History	On examination
Duration of symptoms	Palmar pallor
Usual diet (before the current illness)	Skin bleeds (petechial and/or purpuric spots)
Family circumstances (to understand the child's social background)	Lymphadenopathy
Prolonged fever	Hepato-splenomegaly
Worm infestation	Signs of heart failure (gallop rhythm, raised Jugular Venous Pressure (JVP), respiratory distress, basal crepitations)
Bleeding from any site	High temperature
Lymph node enlargement	
Previous blood transfusions	
Similar illness in the family (siblings)	

Treatment:

- Treat suspected IDA with iron therapy (see dosage in Chp V: IMNCI protocol); continue iron for 8–12 weeks after normal Hb is achieved
- Deworming all children with albendazole (see dosage in Chp V: IMNCI protocol)
- Distribution of baalvita (MNP) to children aged 6–23 months linked with IYCF promotion

Advice:

- Consumption of food rich in iron and vitamin C, e.g., red and black pulses, green leafy vegetables
- Prevention of hookworm infestation: avoid walking barefoot, use safe drinking water.

Instructions for taking Iron tablets

- Take tablets with meals or if once daily at night
- Do not worry about black stools, this is normal.
- If constipated, drink more water.
- Take tablets after food or at night to avoid nausea.

b. IDA in Pregnancy and Lactation

See Chapter VII, Section 2 on Anaemia

c. Iron Deficiency Anaemia among Adolescent Girls aged 10–19 years:

- Weekly oral Iron and Folic Acid (IFA) supplementation** with 60mg of elemental iron and 400mcg (0.4mg) folic acid tablet to adolescent girls aged 10–19 years through BHCCs, other health facilities, Female Community Health Volunteers and schools.

The first phase of supplementation runs for 13 weeks during the months of Shrawan, Bhadra and Ashoj; there is no supplementation for the next 13 weeks in the months of Kartik, Mangsir and Poush.

The next phase of supplementation runs for 13 weeks during the months of Magh, Falgun and Chaitra; there is no supplementation for 13 weeks in the months of Baishakh, Jestha and Asar.

- Preventive biannual chemotherapy (deworming)**, using a single dose of albendazole (400mg) to School-age Children (girls and boys) aged 5–14 years, who are studying in basic education during the months of Baishak and Mangsir in a school calendar year.

6. BODY MASS INDEX, OVERWEIGHT, OBESITY

There is a rising incidence of obesity and overweight in Nepal due to:

- Access to a greater range of foods, including ready-made snacks/junk foods
- Reduced exercise and activity levels.

Generally, the Body Mass Index (BMI) is used to determine whether adults are over- or underweight. This is calculated by dividing the weight (in kg) of the patient by the square of their height (in metres). There are convenient charts online and in textbooks.

See Annex 4 for BMI chart of boys and girls of age 5-19 years

What BMI means (adults) for Asian adults

- Underweight BMI <18.5
- Normal BMI 18.6–22.9
- Overweight BMI 23–26.9
- Obese BMI >27

An easier and more accurate measurement of obesity in adults is the waist circumference taken at the level of the umbilicus. This should be less than 90cm for men and less than 80cm for women.

Obesity increases the risk of early death by three times. It also makes the following problems more likely:

- DM – a high proportion of obese people in Nepal will also develop DM
- Heart disease, HTN and stroke – also strongly linked to DM
- Cancer of the small or large intestine, pancreas, colon, uterus, ovaries, breast and many others
- Joint and back problems
- Mobility problems
- Gall bladder disease
- Menstrual disorders
- Complications of pregnancy.

How to lose weight?

- Reduce food intake, especially carbohydrates
- Avoid sweet items and processed or fried food
- Eat plenty of fresh vegetables
- Avoid snacks between meals
- Eat from a smaller plate
- Increase the level of activity.

Overweight and obese children:

Obesity among children is rapidly increasing. It is much easier to prevent obesity in children than to reverse it. Generally, it is important to recognise if a child is heavier than it should be – use weight for height charts.

In children aged 0–5 years:

Weight for height above +2 Z is overweight and above +3 Z is obesity.

In children >5 years and adolescents up to 19 years:

Weight for height above +1 Z and below +2 Z (> 85th centile and < 95th centile) is overweight and above +2 Z (> 95th centile) is obesity.

Prevention of Overweight and Obesity in Teenagers (Adolescent Girls and Boys aged 10-19 years) and Adults:

1. Promoting physical activity in children:

- Physical activity should be muscle- and bone-building, not limited to aerobic activity (e.g. sports, running, brisk walking and jumping)
- Teens and adults should be engaging in vigorous physical activity at least for 60 minutes a day
- Physical activity should be increased by reducing sedentary time (e.g. watching television, playing computer video games or talking on the phone)
- Physical activity should be fun for adolescents and adults.

2. Maintaining healthy diet for children and adolescents:

- The daily diet should contain five or more food groups in older children and teens and four or more groups in younger children – do not include nuts and seeds in younger children. The eight food groups are; (1) grains, white roots and tubers, and plantains; (2) pulses (beans, peas and lentils); (3) nuts and seeds; (4) dairy; (5) meat, poultry and fish; (6) eggs; (7) dark green leafy vegetables; and other vitamin A-rich fruits and vegetables; (8) other vegetables and fruits.
- Energy (calories) should be adequate to support growth and development and to reach or maintain the desirable BW
- Eat foods low in saturated fat, trans fat, cholesterol, salt (sodium) and added sugars
- Choose a variety of foods to get enough carbohydrates, protein and other nutrients
- Eat only enough calories to maintain a healthy weight for your height and build
- Serve wholegrain/high-fibre breads and cereals rather than refined grain products
- Look for “wholegrain” as the first ingredient on the food label and make at least half your grain servings whole grain
- Serve a variety of fruits and vegetables daily, while limiting juice intake
- Do not regularly consume highly processed foods (instant noodles, biscuits, ready made foods) or sugary drinks
- Serve fat-free and low-fat dairy foods
- Do not overfeed. The estimated calories needed range from 900/day for a 1-year-old to 1800 for a 14–18-year-old girl and 2200 for a 14–18-year-old boy.

REFERRAL

If no improvement with continuous effort in prevention methods for three to six months.

CHAPTER VII

SAFE MOTHERHOOD, SAFE ABORTION CARE AND PMTCT

1. ANTENATAL CARE

The aim of Antenatal Care (ANC) is to ensure the birth of a healthy baby, and at the same time safeguard the well-being of the mother. It should consist of counselling and education, preventing common problems such as anaemia, treatment of common diseases, early detection of risk factors and complications, stabilisation and referral.

In the focussed approach to ANC, essential interventions are provided over at least four visits for healthy women with no risk factors or complications.

The first visit should be in the first trimester, by 12 weeks, the second at five to seven months, third at eight months or 32 weeks and the fourth at nine months or 36 weeks; additional visits may be made at any time if there are any problems or complications.

How do we provide antenatal care?

- **Ask LMP.**
- Write down obstetric history, including all previous pregnancies.
- Write down gestational age in weeks at all visits, perform an abdominal examination and compare actual with expected fundal size. If small, consider wrong dates, miscarriage, and growth retardation; if large, consider multiple pregnancy, molar pregnancy, wrong dates, and polyhydramnios.
- Check foetal heart sound at about 22 weeks, foetal lie and presentation from 34 weeks on.

Screening/ at-risk pregnancy

Risk factors include: Rheumatic Heart Disease (RHD), DM, HTN, kidney disease, anaemia, mental health problems, Sexually Transmitted Infection (STI), HIV, being less than 18 years old, or over 35 any gravida, high parity (more than four previous births), blood group rhesus negative, previous Caesarean Section (CS), previous stillbirth or neonatal death; smoking, drinking alcohol, maternal malnutrition and obesity.

DIAGNOSTIC FEATURES

History, examination - See Reproductive Health (RH) Protocols for ANM/ Staff Nurses (SN)

BHS doesn't cover Blood test, USG, Sugar, HIV, VDRL testing

Investigations

For all women:

- Hb, blood group and rhesus typing, Venereal Disease Research Laboratory (VDRL), urine albumin and sugar
- Ultrasound (before 24 weeks) – To estimate gestational age, for detection of foetal anomalies and multiple pregnancy
- HIV testing – PMTCT service
- Blood sugar at first visit and at 24–28 weeks for all women. If Fasting Blood Sugar (FBS) >126mg/dL or Random Blood Sugar (RBS) >200mg/dL, refer to higher centre for management of DM.

For specific groups

- Malarial parasites (endemic area).

BHS doesn't cover RDT testing.

MANAGEMENT**Drug Supplementation:**

- Tab IFA – 60mg elemental iron, 400mcg folic acid – 1 Tab OD, start as early as possible, in the first trimester and continue up to 6 weeks post-partum
- Folic acid – Start before conception
- If iron is not tolerated due to excessive nausea, give Tab Folic Acid 5mg daily in the first trimester and change to IFA from fourth month of pregnancy
- In women with low dietary calcium intake (i.e., low intake of dairy products), give daily calcium supplementation (1.5–2g oral elemental calcium)
- Tab albendazole – 400mg, after first trimester
- Inj TD – at first visit, second dose after one month (see table below)
- All pregnant women on antiepileptic drugs should be given folic acid 5mg OD (in addition to IFA) for prevention of birth defects, starting before conception.

BHS doesn't cover Calcium tablet.

How to take Iron tablets

- ✓ Take tablets after food or at night to avoid nausea
- ✓ Do not take iron tablets with milk or tea
- ✓ If constipated, recommend a fibre-rich diet and drinking more water
- ✓ Do not worry about black stools: this is normal

TD immunisation schedule of women of child-bearing age and pregnant women without previous exposure to TT, TD or DTP:

Dose of TD	When to give?	Expected duration of protection
1 st	At first contact or as early as possible in pregnancy	None
2 nd	At least four weeks after TD1	1–3 years
3 rd	At least six weeks after TD2 or during subsequent pregnancy	At least 5 years
4 th	At least one year after TD3 or during subsequent pregnancy	At least 10 years
5 th	At least one year after TD4 or during subsequent pregnancy	For all childbearing age years

ADVICE to woman and her family

- Deliver in health facility for safety of mother and baby
- Nutrition and diet: Iodised salt, yellow and dark green vegetables
- Smoking and alcohol: Discourage
- Exercise: Continue normal work or exercise unless specific problems are encountered
- Birth-preparedness counselling – where to go for delivery or if she has an emergency complication
- Postpartum FP
- Early and exclusive breastfeeding
- In third trimester: Provide Tab misoprostol 600mcg, to be taken after delivery of the baby, should institutional delivery not be possible.

Danger signs in pregnancy

- Any Per Vagina (PV) bleeding
- Difficulty in breathing, chest pain
- Fever
- Blurring of vision, severe headache and seizure or convulsion, loss of consciousness
- Swelling of face or feet in the mornings
- Severe abdominal pain
- Offensive/foul-smelling discharge from vagina
- Clear or coloured fluid leaking from vagina (premature rupture of membranes)
- Vomiting in late pregnancy
- Loss of foetal movement
- Jaundice.

REFERRAL (to a higher centre)**During ANC**

- All high-risk/complicated pregnancies
- For HIV counselling/testing (PMTCT) – to Birthing Centre
- For ultrasound – Ideally, all women around 20–24 weeks; must refer if wrong dates/unsure of dates, or if risk factors present, such as foetal growth problems, HTN, DM, any vaginal bleeding, any history of serious complications in previous pregnancies
- If blood sugar reports suggest DM
- Mother experiencing danger signs.

2. ANAEMIA IN PREGNANCY

Anaemia is a common maternal problem during pregnancy and contributes to a large number of maternal deaths. Prevention of anaemia and timely treatment is therefore important.

Screen all pregnant women for anaemia.

Severe anaemia	- Hb <7g/dl
Mild to moderate anaemia	- Hb 7–11g/dl
No clinical anaemia	- Hb >11g/dl

BHS doesn't cover Hb testing

DIAGNOSTIC FEATURES**History and examination**

- Pallor
- Easy fatigability
- Angular stomatitis
- Palpitation and dyspnoea
- Glossitis (painful red tongue) and koilonychia (spooning of the fingernail) may be present in long-standing severe anaemia.

Investigation:

Hb, blood grouping
Urine and stool routine.

BHS doesn't cover Hb, Blood group, urine and stool testing

MANAGEMENT**Prevention of IDA in pregnancy and lactation**

- See above (Drug supplementation)

Drug treatment of anaemia in pregnancy and lactation

- Iron: Double dose of Iron tablets (60mg elemental iron + 400mcg folic acid twice daily from four months of pregnancy and continue until 12 weeks post-partum)
- Single-dose albendazole (400mg) to pregnant women, after the first trimester of pregnancy.
- In endemic areas if anaemia is present with fever – consider antimalarial drugs: See Chapter IX, Section 4 (Malaria).

Advice

- Counsel pregnant women to use at least five food groups (out of 10) in their daily diet to meet the micronutrient intake requirement: (1) grains, white roots and tubers, and plantains; (2) pulses (beans, peas and lentils); (3) nuts and seeds; (4) dairy; (5) meat, poultry and fish; (6) eggs; (7) dark green leafy vegetables; (8) other vitamin a-rich fruits and vegetables; (9) other vegetables; (10) other fruits
- How to take iron tablets – See box alongside.

How to take Iron tablets

- ✓ Take tablets after food or at night to avoid nausea
- ✓ Do not take iron tablets with milk or tea
- ✓ If constipated, recommend a fibre-rich diet and drinking more water
- ✓ Do not worry about black stools: this is normal

REFERRAL

- Severe pallor
- Hb <7g/dl
- Presence of associated pre-eclampsia
- Signs of heart failure
 - o Dyspnoea/breathlessness
 - o Raised jugular vein pulse
 - o Generalised oedema
 - o Tachycardia
 - o Crepitation at the lung bases.

3. NORMAL LABOUR AND BIRTH

The midwife or skilled health personnel (SHP) or skilled birth attendant (SBA) conducting deliveries in primary care, must be competent at managing labour and delivery, detect complications, stabilise and refer appropriately. The midwife or SHP or SBA must be able to perform an accurate PV exam and commence IV fluids in an emergency.

Labour is divided into three main stages:

- The active phase of the First stage: from 4cm to full dilatation (10cm) of the cervix: This phase rarely lasts more than 12 hours
- Second stage: from full dilatation of cervix to expulsion of the foetus. This stage should take a maximum of three hours in first labours and maximum two hours in subsequent labours
- Third stage: from delivery of the baby to delivery of the placenta, one to two hours after the delivery of baby, when the risk of immediate Postpartum Haemorrhage (PPH) is highest.

DIAGNOSTIC FEATURES

History

- Ask the woman if she has any danger signs and symptoms
- Any risk factors during ANC or during previous pregnancies
- Previous history of Caeserian Section (CS).

MANAGEMENT

- Assess and monitor maternal condition: temperature, pulse, BP, pains, ruptured membranes
- Assess and monitor: foetal heart auscultation half-hourly (after contraction), foetal presentation, position, descent
- Full bladder (ask patient to pass urine) and perform PV examination
- Monitor contractions, check cervical dilatation four times an hour
- Monitor urine output.

Evidence-based guidelines

- Active labour is said to have started when a woman has regular painful uterine contractions, and cervix is 4cm dilated or more
- ALWAYS USE A PARTOGRAPH as it gives advance warning of possible later problems, allowing time for transport to a referral centre
- In a normal pregnancy, without risk factors or complications, there is NO NEED TO START AN IV LINE AND GIVE IV FLUIDS. Women can have oral fluids and take a light diet
- Oxytocin should not be used in the first stage, in normal labour. (Refer to a Comprehensive Emergency Obstetric and Neonatal Care (CEONC) facility for prolonged labour)
- Optimal storage of oxytocin is at 2–8°C in a refrigerator; however, in case a refrigerator is not available, temporary storage outside the refrigerator at a maximum of 30°C is acceptable for a period of not more than three months
- Supportive care – be respectful and kind to the woman; encourage her to be mobile; avoid unnecessary lithotomy position. (See also RH Protocols for ANM/(SN)
- Encourage a birth companion during labour and delivery.

Delivery

- Ensure woman passes urine before delivery
- Perineal protection during crowning of head
- Deliver baby onto mother's abdomen.

After delivery, the most important thing is to prevent PPH, by performing active management of the third stage of labour (AMTSL)

- Give Oxytocin 10 units IM within one minute of delivery
- If not available, give Tab Misoprostol – three tabs PO (600mcg) within one minute of delivery
- Clamp and cut the cord between one and three minutes after birth
- Perform controlled cord traction when the uterus is contracted
- Feel the uterus once the placenta delivers and massage if soft
- Check placenta for completeness
- Record the amount of bleeding
- Check for tears.

Immediate newborn care (See Chapter V (IMNCI))

- Dry, stimulate and wrap baby with a dry cloth
- Assess if baby is breathing; if not, keep warm and clear airway and if needed stimulate two times
- Does baby need resuscitation if Not breathing or gasping? (See in IMNCI protocol)
- If the baby is crying well, clamp/tie and cut umbilical cord, between one and three minutes after birth, 2–5cm from umbilicus of baby and observe if oozing is present
- Place baby on mother's chest with skin-to-skin contact. Cover mother and baby with a warm blanket. Cover the baby's head with a cap.
- Encourage breastfeeding within one hour
- Apply 3g CHX gel (4%) on umbilicus
- Weigh the baby
- Examination the baby for gross anomalies and injuries
- Explain findings to mother and family.

REFER TO A CEONC FACILITY

Danger signs in labour and delivery

- Heavy PV bleeding: See Chapter VII, Sections 6.A. (Antepartum Haemorrhage) and 6.D. (Postpartum Haemorrhage)
- High BP: See Chapter VII, Section 6.B. (Pre-eclampsia/Eclampsia)
- Fits/convulsions: See Chapter VII, Section 6.B. (Pre-eclampsia/Eclampsia)
- Malpresentation – breech presentation, abnormal lie, cord or hand prolapse: See Chapter VII, Section 6.C. (Prolonged/Obstructed labour)
- Prolonged labour >12 hours: See Chapter VII, Section 6.C. (Prolonged/Obstructed labour)

Other reasons for referral

- Foetal distress:
 - Persistent bradycardia, HR less than 110/min
 - Persistent tachycardia, HR higher than 180/min
- Previous CS
- Other risk factors, such as DM, HTN, IUGR baby, big baby

4. POSTPARTUM CARE OF THE MOTHER AND IMMEDIATE NEWBORN CARE

All mothers and babies need at least four postnatal check-ups in the first six weeks:

- First visit within 24 hours: at the health facility before discharge
- Second visit: on day three (48–72 hours) – at the mother’s home
- Third visit: between day 7 and 14 after birth – at the mother’s home
- Fourth visit: six weeks after birth – at the health facility or at the vaccination centre (at the same time as baby’s BCG vaccination)

DIAGNOSTIC FEATURES: Routine Postnatal Care (PNC)

Ask about or look for	Management of abnormal postpartum findings
Per Abdomen uterus contracted, involuting and not palpable in two weeks	
Anaemia	Help family to understand that mother needs iron-rich foods. Give two tablets IFA daily
Encourage breastfeeding: Nipple retracted Nipple cracked Check for engorgement Redness, tenderness, fever – Mastitis	Draw out nipple Apply breast milk to areola Hot compress, express milk Antibiotics – cloxacillin 500mg QDS for five days (or amoxicillin 500mg TDS for five days) Not responding within three days – Refer
Does she have constipation?	Take vegetables, fruits, plenty of fluids
Does she have problems passing urine?	Check urine routine – rule out UTI If leukocytes >5/High-power Field (HPF) or nitrites positive, give: Cap amoxicillin- 500mg TDS for seven days OR nitrofurantoin 100mg BD for seven days (NLEM)
Check episiotomy/perineal tear/CS wound	If superficial infection: Cap amoxicillin 500mg TDS for five days If deep infection: Refer – see Chapter VII, Section 6.E. (Puerperal Infection)
Vaginal discharge – blood discharge for five days, pink discharge for two to three weeks	If fever and foul-smelling discharge present: Refer (See Chapter VII, Section 6.E. (Puerperal Infection))
Check her mood and happiness for depression in the first two weeks	If evidence of postpartum depression: Refer to higher centre
BP	If >140/90: Recheck. Refer if it persists
Encourage exclusiv breastfeeding	
Counsel for Healthy Timing and Spacing pregnancy (HTSP) and FP	

Warning sign (woman should attend a health institution if any of these are present)

- Severe headache, convulsions: Stabilise and refer
- Continuous and/or heavy bleeding: Stabilise and refer
- Calf pain or tenderness: Refer
- Continuous leakage of urine or stool from vagina: Catheterise and refer
- Breast engorgement, tenderness, redness
- Infected episiotomy wound/tear (sore perineum)
- Uterus tender, burning and frequency of urination
- Insomnia or depression
- Offensive vaginal discharge with or without fever
- Fever ($\geq 38^{\circ}\text{C}/100.4^{\circ}\text{F}$) after the first 24 hours.

**BHS doesn't cover Blood
Group testing**

Rhesus immunoglobulin

If mother rhesus positive: No action

If mother rhesus negative: Check baby's blood group and rhesus

If baby is rhesus negative: No action

If baby is rhesus positive: Refer within 24– 72 hours for Inj rhesus immunoglobulin

At Discharge**Counseling:**

- Continue Tab IFA
- For FP, breastfeeding
- Immunization at six weeks
- PNC visit at six weeks

REFERRAL

- UTI, mastitis, infection of episiotomy or of CS wound – Not responding to antibiotics: stabilise and refer
- Severe headache, convulsions: Stabilise and refer
- Continuous and/or heavy bleeding: Stabilise and refer
- Continuous leakage of urine or stool from vagina: Catheterise and refer
- BP >140/90
- Postpartum depression
- If Rhesus negative mother, with Rhesus positive baby or baby's Rhesus status unknown - Refer within 24-72 hours for Inj Rhesus Immunoglobulin.

5. MANAGEMENT OF COMPLICATIONS: EMERGENCY OBSTETRIC AND NEWBORN CARE

While most women will have a normal birth, 15% of women will develop complications that are life-threatening to themselves and sometimes their babies. These are:

- Haemorrhage (post- and antepartum)
- Pre-eclampsia/eclampsia
- Prolonged/obstructed labour
- Sepsis
- Complications of abortion.

Many of these complications cannot be predicted or prevented, but they can be treated, and lives saved, if diagnosed without delay and managed correctly.

The services needed to save the lives of mothers and newborns are known as Emergency Obstetric and Newborn Care (EONC) services. These services are sub-divided into three packages to be provided at different levels of the health system:

Obstetric and Newborn First Aid (at facilities providing BHCS)

1. Oxytocin for control of haemorrhage
2. Magnesium sulphate for treatment of eclampsia
3. Antibiotics for sepsis
4. Neonatal resuscitation (bag and mask)

Basic EONC (BEONC: selected higher-level facilities – PHCCs, Hospitals and others)

In addition to the above services, BEONC facilities will provide:

5. Removal of a retained placenta
6. Assisted delivery with vacuum
7. Manual Vacuum Aspiration (MVA): removal of retained products

CEONC: Secondary and Tertiary Care Hospitals

In addition to the above services: CEONC facilities will provide:

8. Blood transfusion
9. CS

The next chapters provide information about Obstetric and Newborn First Aid, for stabilising women with haemorrhage, pre-eclampsia/eclampsia, infection and neonatal asphyxia.

6. OBSTETRIC FIRST AID AND REFERRAL**6.A. ANTEPARTUM HAEMORRHAGE (APH)****Definition**

- Vaginal bleeding after 22 weeks of pregnancy
- Vaginal bleeding in labour before delivery.

IN CASES OF APH, DO NOT PERFORM PV EXAMINATION! Unless placenta praevia is ruled out by scan.

DIAGNOSTIC FEATURES of APH

Presenting symptom and other symptoms and signs typically present	Symptoms and signs sometimes present	Probable diagnosis
<ul style="list-style-type: none"> • Bleeding after 22 weeks: PAIN PRESENT 	<ul style="list-style-type: none"> • Shock may or may not be present • Tense/tender uterus • Decreased/absent foetal movement • Foetal distress or absent foetal heart sounds 	Abruptio placenta
<ul style="list-style-type: none"> • Bleeding after 22 weeks gestation PAINLESS 	<ul style="list-style-type: none"> • Shock may or may not be present • Bleeding may be precipitated by intercourse • Relaxed uterus • Lower uterine pole feels empty 	Placenta praevia
<ul style="list-style-type: none"> • Bleeding (intra-abdominal and/or vaginal) in active labour (very rarely in pregnancy before labour, usually only when uterine scar is present) Severe abdominal pain (may decrease after rupture) 	<ul style="list-style-type: none"> • Shock may or may not be present • Abdominal distension/free fluid • Abnormal uterine contour • Tender abdomen • Easily palpable foetal parts • Absent foetal movements and foetal heart sounds • Rapid maternal pulse 	Ruptured uterus

MANAGEMENT**Rapid assessment****Is bleeding heavy?**

Is the woman in shock? i.e., HR > 100, SBP < 100mm, sweating, pallor, cold clammy extremities

Bedside clotting test (if possible)

(Take 2ml of venous blood taken in a glass test tube and ket at 37 OC for 7 minutes)

Drug treatment**Obstetric First Aid:**

16-gauge cannula – start two lines
Start IV NS – 1L fast (30 min).

Arrange immediate referral to CEONC facility

Arrange IV fluids for the trip, 2L in first hour and until SBP is > 100mmHg. Then give 500ml three-hourly

Arrange oxygen if available – 6–8L

Insert Foley catheter

Nurse in lateral position

Failure of a clot to form after seven minutes or a soft clot that breaks down easily suggests coagulopathy

REFERRAL

- Stabilise and refer to a CEONC facility.

6.B. PRE-ECLAMPSIA/ECLAMPSIA

Pre-eclampsia/eclampsia is a major life-threatening complication and is the second major cause of maternal death in Nepal.

B.1. PRE-ECLAMPSIA**Definition**

Pre-eclampsia: New-onset HTN (BP > 140/90mmHg) and proteinuria after 20 weeks of gestation in two readings four hours apart

Mild pre-eclampsia: SBP greater than or equal to 140 and/or DBP greater than or equal to 90 after 20 weeks of gestation with proteinuria 2+

Severe pre-eclampsia: SBP greater than or equal to 160 and/or DBP greater than or equal to 110 after 20 weeks of gestation with proteinuria more than 2+.

Who is at risk?

- Pregnancy – under 18, or over 35, primi, twin pregnancy
- Chronic illnesses – HTN, DM, kidney disease
- Previous pregnancy – with high BP or pre-eclampsia.

DIAGNOSTIC FEATURES**History**

- Duration of pregnancy: establish if the pregnancy is greater than or less than 37 weeks
- Features of mild disease- slight swelling of ankles extending to face, vulva, and whole body.
- Features of alarming symptoms- rise of DBP > 90mmHg, headache, epigastric pain, blurred vision, dyspnea, seizures.

Examination

- DBP \geq 90mm Hg
- Chest: assess lungs for crepitation (pulmonary oedema)
- PA exam: examine for liver tenderness, foetal heart sounds
- Deep tendon reflexes: brisk reflexes (hyperreflexia) are a sign of severe pre-eclampsia.

Investigations

- Urine: albumin, Routine Examination (R/E)
- Blood: Hb, VDRL, blood group rhesus, bedside clotting test.

BHS doesn't cover Urine and blood test

MANAGEMENT**Advice**

Explain that there is a risk to the life of the mother and her baby, whether it is mild or severe pre-eclampsia.

The risk increases with delay in referral.

The definitive treatment is delivery of the foetus.

She must be referred to a CEONC facility**Mild pre-eclampsia**

- Tab methyldopa – 250mg QID (max dose 2g/day) (Refer to a higher centre).

Severe pre-eclampsia

- Start IV with 16-gauge cannula
- Give anti-hypertensives:
 - o If DBP higher than 110, give Tab nifedipine 5–10mg orally (Do not give sublingual as it can cause precipitous fall in BP)
 - o Take BP 30 minutes after 1st nifedipine dose
 - o If DBP still higher than 110, repeat dose, maximum dose 30mg in acute treatment settings.
- Give loading dose of magnesium sulphate (OBSTETRIC FIRST AID) and refer
- o Give 4g of 20% Magnesium Sulphate solution IV over five minutes
- o Follow promptly with 10g of 50% magnesium sulphate solution: give 5g in each buttock as a deep IM Inj with 1ml of 2% lignocaine in the same syringe. Ensure aseptic technique when giving magnesium sulphate deep IM Inj.

Note: 1 ampoule contains 2ml = 1g = 50% weight by volume

- If there are signs of magnesium toxicity (RR $<$ 16/min, urine output $<$ 30ml/hour, absent patellar reflex): Give calcium gluconate 1g (10ml of 10% solution) IV slowly over three minutes stat. Stabilise and refer.
- Insert Foley's catheter.

Post-partum

Check BP at six weeks to see if it has returned to normal.

REFERRAL TO A CEONC FACILITY

- Any woman with pre-eclampsia/eclampsia: Stabilise and refer.

B.2. ECLAMPSIA

Eclampsia: SBP 140mm Hg or higher or DBP 90mm Hg or higher associated with convulsion after 20 weeks of gestation.

When convulsions occur in a pregnant woman, in the third trimester or within 48 hours post-partum, in the absence of a previous history of known epilepsy, the diagnosis is eclampsia.

DIAGNOSTIC FEATURES

History

- Duration of pregnancy
- Number of fits.

Examination

- DBP: assess >90mm Hg after 20 weeks of gestation
- Chest: assess lungs for crepitations (pulmonary oedema)
- PA: foetal heart sounds, examine for liver tenderness
- Deep tendon reflexes: brisk reflexes (=hyperreflexia).

Goals of immediate care

- Control convulsions
- Control HTN
- Delivery of the baby
- Prevent injury.

MANAGEMENT

Advice

- High risk of death of mother and new-born, unless referral accomplished rapidly

Treatment

- Provide obstetric first aid, followed by immediate referral to a CEONC facility in a secondary/tertiary hospital
- Nurse in lateral propped-up position
- IV, oxygen, Foley catheter
- Control convulsions – Give loading dose of magnesium sulphate – See Chapter VI, Section 6.B.1 (Pre-eclampsia)
- Control BP– See Chapter VI, Section 6.B.1 (Pre-eclampsia)

Do not give Inj methylergometrine post-delivery to women with HTN, pre-eclampsia, eclampsia.

Post-partum

- Check BP at six weeks post-partum.
- If still high, treat as for chronic HTN and follow up.
- Family Planning advice – See Chapter VIII, Section 1 (Family Planning).

REFERRAL

- Stabilise and refer to a CEONC facility.

6.C. PROLONGED/OBSTRUCTED LABOUR DIAGNOSTIC FEATURES

Diagnosis of labour: Labour is diagnosed when a woman has regular painful uterine contractions, accompanied by a “show” or rupture of membranes and the cervix is 4cm or more dilated.

Partographic recording of the progress of labour

- The active phase of the first stage of labour is from 4cm to 10cm dilatation, i.e., full dilatation of the cervix
- A partograph must be plotted for every woman in labour who is 4cm or more dilated
- The alert line on the partograph is drawn from 4cm dilatation, and represents a progress rate of 1cm/hour, until full dilatation
- An action line is drawn 4cm to the right of the alert line.
- If the rate of dilatation is less than 1cm/hour, the graph of cervical dilatation will cross the alert line; this is “delayed progress”, and the woman and her family should be alerted about the possibility of referral to a higher centre
- With the next PV examination, after 4 hours, if labour does not accelerate, and if the graph crosses the action line, the woman should be referred to a higher centre.

Monitoring during labour

- Monitor Foetal Heart Rate (FHR) every 30 minutes, in the first stage, and every 15 minutes in the second stage (after contractions)
- If FHR is persistently <100 or >180/min, refer to a higher centre
- PV examination – every four hours in the first stage
- Suitable progress in the first stage of labour, is a minimum rate of 0.5-1cm/hour.

What not to do? In BHCCs, oxytocin infusion is not recommended in cases of prolonged labour.

MANAGEMENT

	Treatment/action	Counselling
Delayed progress in the first stage		
If after four hours, the cervix has not dilated ≥ 4 cm, the graph of cervical dilatation will cross the alert line	This is “prolonged labour”. Artificial Rupture of Membranes (ARM) may be considered, if the foetal head is well engaged	Advise family members that woman MAY need referral
The next PV examination should be done after four hours	If cervical dilatation is still less than 4cm in 4 hours, the patient should be referred	REFER
Delayed progress in the second stage		
If the second stage lasts >2 hours in a nullipara and >1 hour in a multipara Cervix fully dilated and woman has urge to push, but no descent.	Referral to a CEONC facility where vacuum/Lower Segment Caesarean Section (LSCS) can be performed, if needed	Family ADVISED TO TAKE MOTHER TO A B/CEONC facility
Delayed progress in labour (first and second stage)		
The woman has been in active labour for 12 hours or more without delivery and delivery is not imminent	Referral to a CEONC facility where vacuum/LSCS can be performed, if needed	Family ADVISED TO TAKE MOTHER TO A CEONC facility

REFER TO A CEONC FACILITY

Prolonged labour: Delayed progress in first/second stage of labour, even after ARM

Obstructed labour: It is difficult to differentiate between prolonged and obstructed labour.

However, if a woman has been in active labour for ≥ 12 hours, she should be referred to a higher centre.

- Insert Foley catheter, before referring.

6. D. POSTPARTUM HAEMORRHAGE

The most important cause of maternal death in Nepal is PPH.

PPH is an EMERGENCY.

DIAGNOSTIC FEATURES

- Vaginal bleeding in excess of 500ml after childbirth or any amount of blood loss that affects the general condition of mother after childbirth is defined as PPH.
- Features of blood loss: Tachycardia, hypotension, sweating, syncope, decreased urine output, cold periphery.

Types:

Primary PPH: Increased vaginal bleeding within the first 24 hours after childbirth

Secondary PPH: Increased vaginal bleeding following the first 24 hours after childbirth.

MANAGEMENT**Immediate management: Then STABILISE AND REFER**

- Perform a rapid evaluation of the woman's general condition, vital signs (pulse, BP, respiration) level of consciousness
- Ensure mother has passed urine
- Massage the uterus to expel blood and blood clots, deliver placenta through active management

If uterus is still flabby, not contracted:

- Give oxytocin 10 units IM and Tab misoprostol – 800mcg (four tablets) sublingual
- If IV oxytocin is not available or fails to stop the bleeding, give Inj methylergometrine 0.2mg (NLEM) IM or IV slowly (Do not give to women with HTN, Pre-eclampsia/Eclampsia)
- Start an IV infusion (16/18-gauge cannula) and infuse NS/RL 1L IV fast and with oxytocin 20 units in 1000ml of RL/NS at 40-60 drops/minute. Continue at 20 units/litre at 40-60 drops/min, if the cause is atonic uterus. Do not give more than 3L of IV fluids.
- Give Inj Tranexamic acid 1gm, 10ml, IV slowly within 3 hours of PPH and repeat after 30 minutes if bleeding continues.
- Insert Foley catheter
- Perform bimanual compression of uterus using sterile gloves.
- Bedside clotting test – If >7 minutes, abnormal

**BHS doesn't cover Inj
Tranexamic acid**

- Determine the cause of PPH as below

Signs/symptoms typically present	Signs/symptoms sometimes present	Cause	Referral
PPH immediately after delivery Uterus soft and not contracted,	Shock	Atonic uterus	Stabilise and refer
Immediate PPH	Complete placenta Uterus contracted	Tears of cervix, vagina or perineum	If tear visualised, suture. If not visualised, pack and refer
Immediate PPH (bleeding is intra-abdominal and/or vaginal) Severe abdominal pain (may decrease after rupture)	Shock Tender abdomen Raised maternal pulse	Ruptured uterus	Stabilise and refer
Immediate PPH or there may be no bleeding Placenta not delivered within 30 minutes after delivery	Uterus may be contracted or may be soft	Retained placenta	Stabilise; refer for manual removal of placenta
Primary PPH Portion of maternal surface of placenta missing, or torn membranes with vessels	Uterus may be contracted or may be soft	Retained placenta fragments	Refer for removal of retained products
Bleeding occurs more than 24 hours after delivery Uterus softer and larger than expected for elapsed time since delivery	Bleeding is variable (light or heavy, continuous or irregular) and foul-smelling	Secondary PPH	Start antibiotics Inj ampicillin – 1g IV Inj gentamycin – 5mg/kg BW IV Inj metronidazole – 500mg IV and REFER

Assess the woman's response to fluids, within 30 minutes, for signs of improvement

- Stabilizing pulse (90 Beats Per Minute (BPM) or less)
- Increasing SBP (100mm Hg or higher)
- Increasing urine output (30ml/hour or more)
- If condition improves, reduce IV infusion rate to 1L/6 hours

REFERRAL

- Refer all cases of PPH, unless patient stabilises within 30 minutes.

6. E. PUERPERAL INFECTION

Puerperal pyrexia is a temperature of 38°C/100.4°F or higher, postpartum within the first 10 days following delivery.

CAUSES

- Genital tract infection/ UTI
- Wound infection – episiotomy/perineal tear/abdominal incision
- Mastitis/breast abscess
- Respiratory tract infections.

DIAGNOSTIC FEATURES

The main clinical features are fever, lower abdominal pain and profuse foul-smelling lochia.

- Uterus may be enlarged and tender
- Peritonitis and pelvic abscess may occur
- UTI may occur
- Signs of septic shock: low BP, tachycardia

Investigations:

- Urine routine
- Blood test (Hb, Blood Total and Differential count, ESR).

MANAGEMENT:

Drug treatment

- Mild
 - Amoxicillin with clavulanic acid 500/125mg TDS for 3 days, OR
 - Amoxicillin 500mg TDS plus metronidazole 400mg TDS for 3 days.

**BHS doesn't cover Amoxicillin
with Clavulanic acid**

Monitor – if there is response, continue for two more days.

Give paracetamol 500-1,000mg QDS or ibuprofen 400mg TDS and when necessary (SOS) until pain and fever subside.

- Severe – STABILISE AND REFER

Give stat dose of antibiotics before referral: ampicillin 2g IV plus Inj gentamycin 5mg/kg BW, plus Inj metronidazole 500mg IV.

REFERRAL

- Women with severe puerperal sepsis
- Women with mild infection, but symptoms do not settle within two to three days.

7. SAFE ABORTION SERVICES

Unsafe abortion is a major cause of maternal death. Nepal legalized abortion in 2002.

Following steps are critical to provide Safe Abortion Services (SAS) to all women including young girls:

- Establish that the woman is pregnant through LMP and PV examination. (Pregnancy test is not mandatory and conducted if only in doubt),
- Pre-existing medical conditions - allergies to any medication, any other drug intake including misoprostol or herbs and bleeding disorders.
- Laboratory Test: Routine laboratory testing is not a prerequisite for abortion services. The need for routine Rhesus (Rh) immunization for Rh negative women undergoing early abortion has not been proven by clinical studies and Rh testing is not required to provide abortion services.
- Ultrasonography is not mandatory to estimate the duration of pregnancy (refer to higher Centre for ultrasound, if in doubt)
- Counselling: Provide complete information for abortion (option of services, benefits, risk, post-abortion contraceptive, return of fertility after abortion etc.)
- Obtain informed consent before initiating the service as per the available national format.

Methods of abortion

For first trimester abortion:

- Upto 10 weeks of gestation "medical abortion" using combination of mifepristone and misoprostol
- Up to 12 weeks of gestation "surgical abortion" using Manual Vacuum Aspiration (MVA)

For second trimester -Refer to higher centre.

A. MEDICAL ABORTION (within 10 weeks)

Steps of medical abortion procedure:

1. Day one: 200 mg mifepristone orally (one pill)
2. At 24-48 hours of mifepristone, misoprostol 800mcg (four pills – 200mcg/Tab) is administered sublingually/buccally and remaining pill fragments are swallowed after 30 minutes. It can also be administered vaginally
3. Pain Management: NSAID (e.g., Ibuprofen) at the time of misoprostol or after misoprostol at every 4-6 hours if pain persist.

BHS doesn't cover second trimester abortion

What to expect after taking the pills?

- The medial time from misoprostol use to expulsion has been found to be three to four hours
- Vaginal bleeding is usually heavier than a menstruation period but sometime may be lighter. The average duration of vaginal bleeding is approximately 14 days.
- Most women may or may not see the expelled Product of Conception (POC) but just blood and clots
- Cramping usually begins one to three hours of taking misoprostol which diminishes soon after expulsion of POC.

B. SURGICAL ABORTION – Manual Vacuum Aspiration (up to 12 weeks of pregnancy)

Preparation of the women:

- **Pre-medication 30 minutes before the procedure.**
 - NSAIDs: Ibuprofen 400mg PO orally and Diazepam 5-10mg orally.
 - Prophylactic antibiotics (Stat dose of Doxycycline 200mg OR Azithromycin 500mg OR Metronidazole 400mg).
- **MVA Procedure:**
 - Paracervical block- 20ml of 1% plain lignocaine at 12, 2, 4, 8, 10 O'clock position at the cervicovaginal junction to 3cm depth.
 - Follow no touch technique throughout the procedure.
 - Prefer largest size of cannula, which could be inserted easily.
 - Stop the suction of the uterine when pink foam without tissue passes through cannula, gritty sensation is felt, uterus contracts around the cannula and uterine cramping increases.
 - Inspection of POC under light view box to help in completeness of the procedure.

ASSESSING AND MANAGING COMPLICATIONS FOLLOWING SAFE ABORTION

Complications are rare during or after uterine evacuation, but they do occur. Major complications can sometimes be avoided by intervening at the right time with timely diagnosis and with proper management.

Incomplete abortion

After uterine evacuation, some tissue may remain in the uterus. Retained products of conception, after medical abortion or MVA, can result in heavy bleeding and infection if untreated.

Management:

Clinically stable patients have the following options:

- Expectant management
- Vacuum aspiration: (for uterine size less or equal to 12 weeks' gestation); OR
- Misoprostol single dose (for uterine size less or equal to 12 weeks' gestation and for medically stable patients) – 400mcg sublingual.

Signs and symptoms

- Heavy, prolonged bleeding PV
- Pallor and weakness
- Agitation or disorientation
- Drop in blood pressure
- Feeling dizzy or fainting
- Rapid pulse and

Hemorrhage

Hemorrhage may occur because of incomplete abortion, trauma or injury to the cervix, vagina or uterus, including perforation of the uterus. Infection or uterine atony might be associated. Every service-delivery facility must be able to stabilize and treat or refer women with hemorrhage immediately.

Management:

- Prompt action to stop bleeding
- Replace fluid or blood volume
- Monitor blood pressure and heart rate, as shock may develop at any time
- Oxygen administration
- I/V Antibiotics (If only infection)
- Transfusion may be needed.
- Every service-delivery facility must be able to stabilize and treat or refer

Appropriate treatment for hemorrhage depends on its cause and severity, and includes:

- Re-evacuation of the uterus using MVA or misoprostol
- Administration of uterotonic drugs; Oxytocin 20 units in 1L IV at a rate of 60 drops per minute, maximum of 3L of fluid.
- Uterine balloon tamponade
- Blood transfusion

Signs and symptoms of uterine infection

- Lower pelvic or abdominal pain
- Vaginal bleeding
- Fever and chills
- Uterine or lower abdominal tenderness on exam
- Cervical motion tenderness

Infection

The rate of infection after a safe first-trimester abortion is low, occurring in less than one in 100 women. Routine use of prophylactic antibiotics with MVA can decrease the rate even further.

Immediate management

- Stabilize the woman, if required provide IV fluid
- Antibiotics
- If retained POC are suspected to be a cause for infection, re-evacuate the uterus with MVA procedure

Delayed management

- Hb%, total white blood cell count, differential count, platelet count and high vaginal swab should be done
- Treat with broad spectrum antibiotics as per national protocol
- Evacuation of uterus with MVA after initial antibiotics are given

If perforation or septic shock is suspected, refer woman under antibiotics to the higher health institutions if not able to treat by the existing doctors in own facility.

Cervical, Uterine or Abdominal Organ Injury

Signs and symptoms (during the procedure)

- Excessive vaginal bleeding
- Sudden, excessive pain
- Instruments pass further than expected
- Aspirator vacuum decreases
- Fat or bowel in aspirate

Signs and symptoms (Post procedure)

- Persistent abdominal pain
- Rapid heart rate
- Falling blood pressure
- Pelvic tenderness
- Fever and/or elevated WBC count

Management for persistent bleeding from the cervix

- Minor injury of the cervix: apply pressure only
- Repair of the cervix if tear is present

Management for uterine injury:

- If perforation is very small and undetected, it may resolve without surgical intervention
- Give oxytocin 10 units IM, begin antibiotics and watch the vital signs of the woman
- If perforation is large or patient's condition starts deteriorating then refer for laparotomy with I/V fluids, I/V antibiotics and oxytocin/ ergometrine if not able to treat by the existing doctors in the facility

Follow up:

- Follow up is not mandatory after the service. However, if the service seekers request for one, follow up can be provided.
- Follow up is necessary if there is warning signs of heavy bleeding (Four pads soaked for 2 consecutive hours), fever, foul-smelling discharge, severe abdominal pain which need to be well informed.

Post-abortion contraceptive counselling

- All four temporary methods (Implant, Injectable, OCP, and Condom) can be provided immediately after the first dose of misoprostol.
- IUCD can be provided as soon as completion of medical abortion process.
- Return of fertility can occur as early as eight days of abortion.
- Provision of contraceptive as per the RH need to prevent future unintended pregnancies

REFERRAL

- Heavy bleeding with shock
- No improvement after initial management.
- Surgical treatment

8. PREVENTION OF MOTHER-TO-CHILD TRANSMISSION OF HIV (PMTCT)

Vertical transmission of HIV is the most common source (more than 99%) of HIV infection in children in Nepal, as in other countries. Perinatal HIV infection can occur during pregnancy, labour and delivery, or during the breastfeeding period. With appropriate Antiretroviral Therapy (ART), the risk of an infant getting infected can be reduced to less than 2%.

During ANC

All pregnant women presenting for ANC should receive the following information:

- Should be given an understanding that HIV counselling and testing is a routine in ANC: Refer to nearest Municipality Hospital/ART centre for testing.
- Information on PMTCT if HIV positive.
- Importance of ART to reduce risk of HIV transmission to infant.

During delivery – Refer to a CEONC Facility

Good infection prevention practices should be maintained

PMTCT

HIV counselling and testing for pregnant women.

All HIV-infected pregnant women should initiate and/or continue ART.

Infant feeding counselling and support:

- Mothers known to be HIV-infected should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods thereafter, and continue breastfeeding until 24 months of age.

FP counselling and services:

- For HIV-positive woman and her spouse/partner to reduce unintended pregnancy.

Antiretroviral Prophylaxis Regimens for PMTCT (*Refer to ART centre for prophylaxis)

Intranatal	Postnatal
All HIV-infected pregnant women should receive first-line ART (TDF+3TC+EFV) * to be continued lifelong	<p>Infant:</p> <p>Syr Nevirapine (NVP) or Zidovudine (AZT) (should be started immediately and continued for six weeks for low-risk babies (mother on ART with virological suppression at the time of delivery, and/or duration of ART is more than eight weeks)</p> <p>Syr NVP and AZT should be started immediately and continued for 12 weeks for high-risk babies (mother not virologically suppressed by delivery time and/or duration of ART is less than eight weeks)</p>

* *Tenofovir Disoproxil Fumarate (TDF), Lamivudine (3TC), Efavirenz (EFV)*

Anti-Retro Virus (ARV) Prophylaxis for Low-risk Babies from Birth to Six weeks (NVP or AZT)

Infant weight	Daily Dose of ARV
Birth weight 2,000 to 2,499g*	NVP 10mg once daily Or
AZT 10mg twice daily	
Birth weight >2,500g	NVP 15mg once daily Or
AZT 15mg twice daily	

ARV Prophylaxis for High-risk Babies (NVP and AZT) (Birth to six weeks)

Infant weight	Daily Dose of NVP	Daily Dose of AZT
Birth weight less than 2,000g	2mg/kg BW once daily	4mg/kg BW twice daily
Birth weight 2,000 to 2,499 g*	10mg once daily	10mg twice daily
Birth weight >2,500g	15mg once daily	15mg twice daily
Six to 12 weeks	20mg once daily	60mg twice daily

Early Infant Diagnosis of HIV-exposed babies:

Immediately after birth (up to 48 hours from delivery) and at six weeks of age, blood samples to be collected in DBS (Dried Blood sample) card for Deoxyribonucleic Acid (DNA) Polymerase Chain Reaction (PCR) testing.

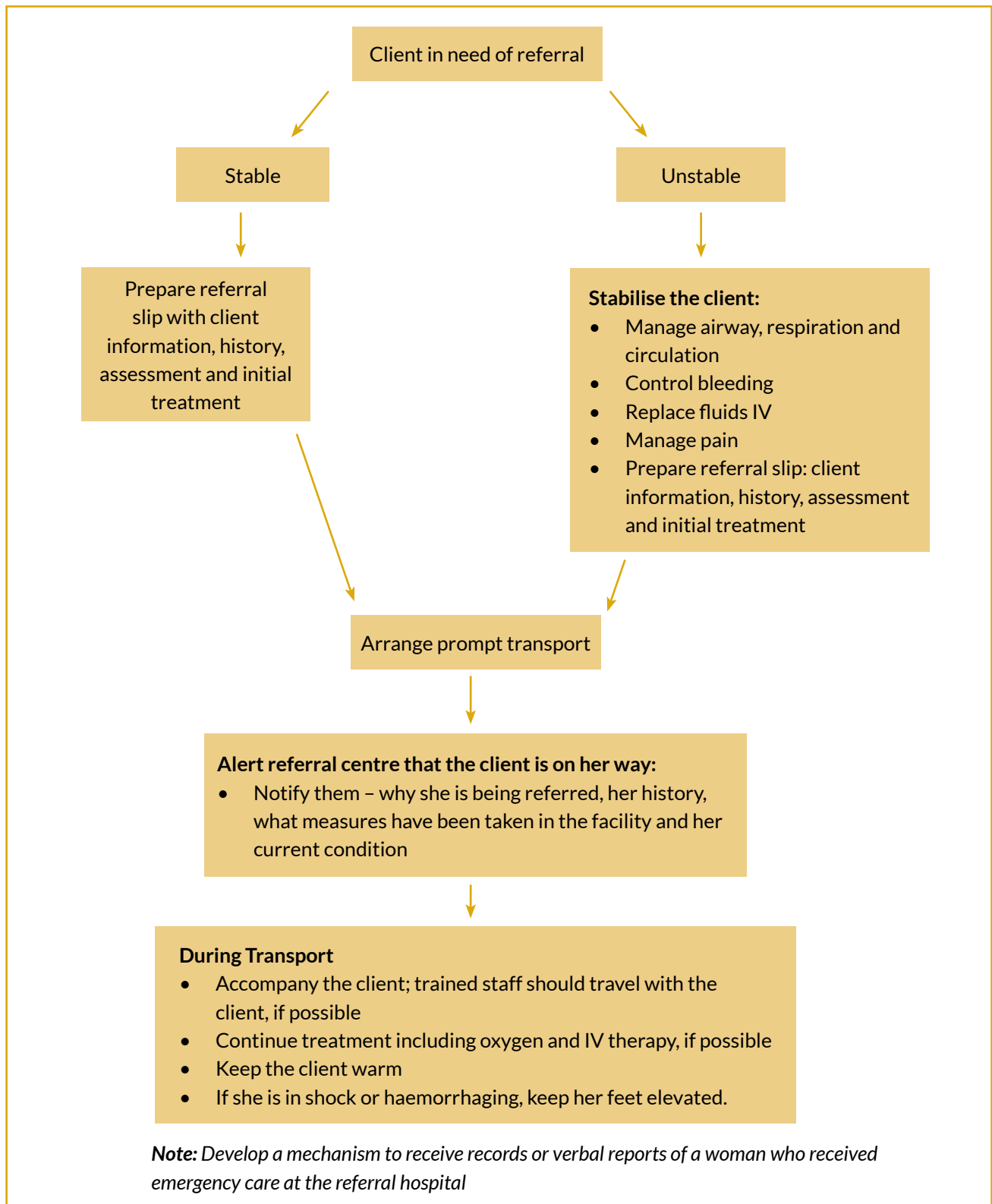
At the age of six weeks, to prevent opportunistic infections, Syrup cotrimoxazole is to be continued at BHCC all HIV-exposed babies following initial prescription from ART centre; this should be continued until confirmation of HIV status i.e., after three months of stopping breastfeeding.

REFERRAL

- To Municipality Hospital/ART centre – for HIV testing
- Refer to a CEONC facility – for assessment of mode of delivery
- Other HIV-related problems.

9. REFERRAL AND EMERGENCY RESPONSE SYSTEM

Women may present in pregnancy, during labour or after delivery with complications or for post-abortion care after spontaneous, safe, unsafe or self-induced abortion. Health care staff must recognise, stabilise the patient and make an appropriate referral.



FAMILY PLANNING AND REPRODUCTIVE HEALTH SERVICES

1. FAMILY PLANNING

Contraception, otherwise known as Family Planning (FP), helps women and couples make an informed decision about planning the number of children they want to have and when to have them.

This chapter discusses the methods of contraception available through BHS, their uses, side effects and limitations.

Spacing methods

- Barrier – Condoms (male)
- Hormonal – Combined Oral Contraceptive (COC) pills, Depot-Medroxyprogesterone Acetate/Depo-Provera (DMPA) , Levonorgestrel (LNG) implant (“Jadelle”)
- Non-hormonal – Intrauterine Contraceptive Device (IUCD)
- Natural modern methods – Lactational Amenorrhoea Method (LAM), fertility awareness method, e.g., Standard Days Method (SDM): See RH Protocols for MO/SN/ANM and Paramedic

Limiting methods – REFER TO HIGHER CENTRE

- Male sterilisation – No-scalpel Vasectomy (NSV)
- Female sterilisation – minilap (tubectomy), laparoscopic (tubal ligation), postpartum tubal ligation including Bilateral Tubal Ligation (BTL) with CS (Caesarean BTL).

CLIENT ASSESSMENT, EFFECTIVENESS AND OTHER ASPECTS OF FAMILY PLANNING METHODS

Specific Situation	COCs	DMPAs	Implants	IUDs	Condoms
Breast examination					
by provider	C	C	C	C	C
Pelvic/genital					
examination	C	C	C	A	C
Cervical cancer					
screening	C	C	C	C	C
Routine laboratory tests	C	C	C	C	C
Hemoglobin test	C	C	C	B	C
STI risk assessment:					
medical history and physical					
examination	C	C	C	A	C
STI/HIV screening:					
laboratory tests	C	C	C	B	C
Blood pressure					
screening	D	D	D	C	C

A- Mandatory, B- Not mandatory but weighs safety, C- Not required, D- Desirable, NA- Not applicable

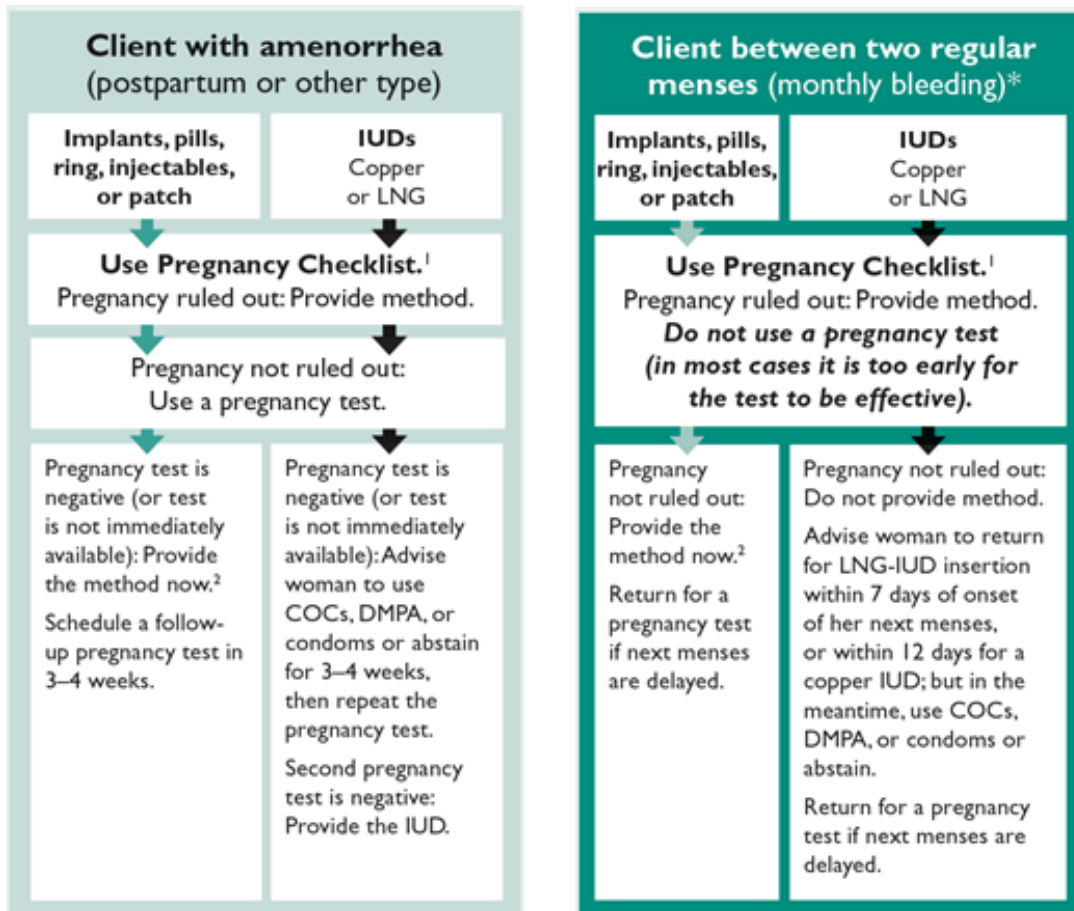
Note: No tests or examinations are needed before using fertility awareness-based methods, lactational amenorrhea method, or emergency contraceptive pills.

How to be reasonably sure that the client is NOT pregnant?

All female clients should be screened for pregnancy before provision of any family planning method. One can be reasonably sure the client is not pregnant after using the following pregnancy checklist:

PREGNANCY CHECKLIST:

Match your client's menstrual status and chosen contraceptive method with one of the options below and follow the instructions.



- 1 See inside back cover for Pregnancy Checklist.
- 2 For implants, counsel about the need to remove the implant if pregnancy is confirmed and she wishes to continue the pregnancy.

In cases where pregnancy cannot be ruled out, offer emergency contraception if the woman had unprotected sex within the last 5 days.

Counsel all women to come back any time they have a reason to suspect pregnancy (for example, she misses a period).

* If the client presents with a late/missed menses, use a pregnancy test to rule out pregnancy. If using a highly sensitive pregnancy test (for example, 25 mIU/ml) and it is negative, provide her desired method.

If using a test with lower sensitivity (for example, 50 mIU/ml) and it is negative during the time of her missed period, wait until at least 10 days after expected date of menses and repeat the test.

Advise the woman to use condoms or abstain in the meantime. If the test is still negative, provide her desired method.

If test sensitivity is not specified, assume lower sensitivity

PREGNANCY TESTS:

As urine pregnancy tests are available at BHSCs, an alternative method can be used to rule out pregnancy:

- Perform a pregnancy test on the day of consultation
- Advise the woman to abstain from intercourse or use condoms safely for three weeks
- Repeat pregnancy test after three weeks
- If the second pregnancy test is negative, and the woman has definitely not had unprotected intercourse in the three weeks between the two tests, she can be considered not pregnant, and FP methods can be started according to guidelines.

1.A. COMBINED ORAL CONTRACEPTIVES (COC)

COCs contain 21 tablets of low doses of two hormones: a progestin and an oestrogen. The COC supplied by MoHP contains 30mcg (0.3 mg) ethinylestradiol, 150 mcg (0.15 mg) LNG and seven iron-containing tablets.

The COC is moderately effective. There is no delay in return of fertility once the pill is stopped.

How to use the COC?

Take the first tablet on the first day following menses, and then daily at the same time each day, for the first pack; repeat a new pack after the first pack is completed. Continue every day without any interruption as long as contraception is desired.

When to start COC?

- Within first five days of menstruation
 - Any day of menstruation if it is reasonably certain the woman is not pregnant
 - Day one of MVA/spontaneous abortion
 - After delivery
- (a) If lactating – start after six months
(b) If not lactating – start after six weeks.

What if a pill is missed?

If a woman misses one or more pills, she should take a missed hormonal pill as soon as possible and keep taking pills as usual, one each day. In addition:

- If one or two pills are missed (or a new pill pack is started one or two days late): Take a hormonal pill as soon as possible.
- If three or more pills are missed in the first and second rows/weeks (or a new pill pack is started three or more days late): Take a hormonal pill as soon as possible, use a back-up method for the next seven days (e.g. condom) and use an ECP if there has been unprotected sexual intercourse in the past five days.
- If three or more pills are missed in the third row/week: Take a hormonal pill as soon as possible, finish all remaining hormonal pills in the pack, throw away the seven non-hormonal pills, start a new pill pack the next day, use a back-up method (e.g. condom) for the next seven days, and use an ECP there has been unprotected sexual intercourse in the past five days.

Who should not use COC?**Precaution for the use of COC:**

The Medical Eligibility Criteria (MEC) for contraceptive use provides guidance on whether women with certain medical conditions can safely and effectively use specific contraceptive methods.

Avoid use: use other methods if available (MEC – 3)

- Smoker and >35 years of age, <15 cigarettes per day
- <6 months post-delivery and breastfeeding
- High BP: SBP 140–159mm Hg or DBP 90–99mm Hg
- Past breast cancer
- Current symptomatic gall bladder disease
- Using antibiotics, rifampicin or rifabutin or anti-convulsant.

COC contraindicated (MEC – 4)

- Smoker and >35 years of age, >15 cigarettes per day
- Migraine headache with aura
- Current breast cancer
- Postpartum less than six weeks and breastfeeding
- High BP: SBP >160mm Hg or DBP >100mm Hg
- History of thromboembolism (DVT/PE), acute thromboembolism (DVT/PE)
- Major surgery with prolonged immobilisation
- Stroke, current and past history of ischaemic heart disease
- SLE (Positive (or unknown) antiphospholipid antibodies
- Liver tumours (hepatoma, adenoma)
- Acute flare-up of hepatitis, severe cirrhosis.

Other Uses of COC

- For Emergency Contraception (ECP)
- Unscheduled (irregular or increased) bleeding following use of IUCD and other hormonal contraceptives
- Abnormal uterine bleeding (see RH Protocol for ANMs/SN and RH Protocols for Paramedics)
- Dysmenorrhea.

Non-contraceptive benefits

- Reduces menstrual blood loss, and thus reduce anaemia
- Relieves dysmenorrhea and premenstrual symptoms
- Regularises menstrual cycles
- Reduces the chances of ectopic pregnancies
- Provides some protection against pelvic infection, and ovarian cysts
- Reduces the chances of developing ovarian and endometrial cancer
- May decrease the risk of colorectal cancer
- Reduces hirsutism, acne.

Side effects of COC

Side effects	Management
Spotting or bleeding	See RH Clinical protocol for SN/ANM
Pain in the breast	May resolve after three months of use. Consider ibuprofen
Amenorrhoea	Assess for pregnancy. If not pregnant, reassure and continue using COC

REFER to a higher centre

- Severe lower abdominal pain/pelvic pain
- Headache (severe)
- Eye problem (vision loss or blurring)
- Chest pain (severe), cough, shortness of breath
- Severe leg pain (calf or thigh).

1.B. DEPOTMEDROXYPROGESTERONE ACETATE (DMPA)

This injectable contraceptive contains DMPA. It does not contain oestrogen and therefore can be used throughout breastfeeding; its use can start six weeks after giving birth.

DMPA is a moderately effective contraceptive. Return of fertility is delayed on average by four months after stopping DMPA.

How to use**Dose**

Inject DMPA, 150 mg IM, into upper arm (deltoid), and buttocks (gluteal) every three months. Repeat Inj of DMPA can be given, without any investigation, if the client is less than four weeks late.

When to start

- At any time of the menstrual cycle if it is reasonably certain that the client is not pregnant
- After six weeks post-delivery, if she is exclusively or partially breastfeeding and amenorrhoeic
- At any time following delivery, if not breastfeeding and if it is reasonably certain that she is not pregnant
- Immediately after abortion.

Who should not use DPMA?**Avoid use – use other methods if available (MEC – 3)**

- Within six weeks post-delivery and breastfeeding
- BP – SBP >160 mm Hg or DBP >100 mm Hg
- Unexplained vaginal bleeding
- Acute DVT/PE Current or history of ischaemic heart disease and stroke
- SLE (Positive (or unknown) antiphospholipid antibodies)
- Liver tumours (hepatoma, adenoma)
- Severe cirrhosis.

DMPA contraindicated – not to be used (MEC – 4)

- Current breast cancer.

Side effects of DMPA

Side effects	Management
Spotting, irregular menstrual bleeding	Bleeding changes are normal and not harmful. If a woman finds them bothersome, counselling and support can help. Reassure: common in first few months, does not need treatment. For short-term relief consider NSAIDs such as ibuprofen. See RH clinical protocol for MO, SN/ANM and Paramedics (Unscheduled Bleeding on Hormonal Contraceptives.)
Reduced menstrual bleeding or no menses	Common within the first year – does not require treatment
Some clients experience weight gain	Control diet and try exercise. If problem does not resolve, switch contraceptive method
Pain in the breast	Reassure – will probably settle after a few months. Can treat intermittently with ibuprofen

Advantages of DMPA

- Reduces monthly bleeding, thus reducing likelihood of anaemia
- Helps protect against cancer of the lining of the uterus (endometrial cancer).

Warning signs – for REFERRAL

- Menstrual irregularity – Not responding to treatment.

1.C. CONDOM

This is a barrier device that prevents deposition of sperm in the vagina. It provides dual protection – against unintended pregnancy and STI/HIV. Its effectiveness at preventing pregnancy is lower than of the other methods. However, return of fertility is immediate.

How to use

1. Use a new condom for each act of sex
2. Before the penis comes in contact with vagina, place the condom on the tip of the erect penis with the 'rolled side' out
3. Unroll the condom all the way to the base of the erect penis
4. Immediately after ejaculation, hold the rim of the condom in place and withdraw the penis while it is still erect
5. Dispose of the used condom safely.

Side effects/problems of condom use

Side effects/problems	Management
Condom broken or breakage suspected	ECP
Local irritation or itching in the penis/ partner experiencing same	Choose another method
Diminished sexual pleasure	Choose another method

Advantages

- Effective method of contraception if used consistently and correctly
- Cheap, easily available, compact, disposable
- Free from side effects.
- Immediately effective
- Decreases the chance of cervical cancer
- Provides protection also against STI and HIV
- Can be used for back-up, e.g., after missed pills.

1.D. EMERGENCY CONTRACEPTION

EC is used to prevent pregnancy after unprotected sexual intercourse or the accidental rupture of a condom during coitus taking place around ovulation. It is also used in case of a misplaced IUCD or a missed pill. It should not be used as the regular method following every act of sexual intercourse.

It is an effective method of contraception, with 1–2 pregnancies/100 women. Return of fertility is immediate.

How to use

Prescribing EC

If client comes within 120 hours (five days) of unprotected sexual intercourse:

1. COC (low dose, e.g., Nilocon White, Sunaulo Gulaf)

- Provide COC four tablets (0.3mg ethinylestradiol + 0.15mg LNG) as soon as possible. Repeat four tablets after 12 hours

Or

LNG:

- Prescribe LNG ECPs two tablets (1.5 mg total dose) once or one tablet (0.75 mg) twice, 12 hours apart
- Counsel client to return if no menses within three to four weeks.

2. IUCD

- Insert IUCD
- Counsel client to return if no menses within three to four weeks.

BHS doesn't cover IUCD insertion

Follow-up after IUCD insertion:

- Non-pregnant client, if wishes, can continue or remove if she does not wish
- Pregnant with IUCD in situ:
 - o Refer for removal and SAS in a referral centre
- All clients who are in need of EC should be counselled for an effective method of FP
- IUCD and ECP does not protect from STI and HIV.

1. E. POSTPARTUM FAMILY PLANNING

The opportunities of providing Postpartum Family Planning (PPFP) counselling and services starts from the time when a woman comes to health facility for ANC.

Return of fertility

The timing of return of fertility for non-breastfeeding mothers is usually around six weeks postpartum and for breastfeeding mothers, it is longer, usually up to six months if she is exclusively breastfeeding.

Period for uptake of PPFP methods

For all users:

- Condoms: When resuming sexual activity
- Inj DMPA: Six weeks after delivery and immediately after delivery if not breast feeding
- PPIUD: Within 48 hours of delivery or between four weeks and one-year post-partum
- Implants: Immediately after delivery and at any time if it is reasonably certain that the client is not pregnant
- Female sterilisation: Until seven days post-partum; otherwise after six weeks of delivery
- Male sterilisation: Immediately or during partners' pregnancy
- Emergency contraceptives: If unprotected sex has occurred four or more weeks post-partum

For users who are breastfeeding:

- Lactation amenorrhea method: Until six months post-partum with exclusive breastfeeding and no menstruation
- Implant: Immediately after delivery
- When a woman is exclusively breastfeeding, COC is not recommended for the first six months, as it interferes with lactation.
- Inj DMPA: after 6 weeks

For users who are not breastfeeding:

- Combined oestrogen-progestin method: After three weeks of delivery
- Implant: Immediately after delivery.
- Inj DMPA: immediately after delivery

2. UTERINE PROLAPSE/PELVIC ORGAN PROLAPSE

Uterine prolapse, or pelvic organ prolapse, is a common problem among Nepalese women. Although more common after the menopause, it is also fairly common among women in the reproductive age group in Nepal.

DIAGNOSTIC FEATURES

Definition: The term pelvic organ prolapse refers to any pelvic structure that protrudes into the vagina (cystocele, rectocele, enterocele). It may be classified according to its anatomical position as follows:

- Cystocele/urethrocele: Descent of the bladder/urethra (anterior vaginal wall)
- Uterine/vault: Descent of the uterus or vault
- Rectocele/enterocele: Descent of the rectum (posterior vaginal wall).

There are four degrees/grades of prolapse:

- Grade 1 – Descent above the hymen, i.e., descent within the vagina
- Grade 2 – Descent to the hymen, i.e., up to the introitus
- Grade 3 – Descent halfway past the hymen, beyond the introitus
- Grade 4 – Maximum possible descent for each site, and the entire uterus is palpable in the prolapsed organ on bimanual palpation.

History and examination: See RH Protocols for ANM/SN & RH Protocols for Paramedics

MANAGEMENT

Selecting patients for treatment with pessary:

- Patients with prolapse who are asymptomatic do not require surgical treatment
- Eighty per cent of pelvic organ prolapse (grades 1 and 2, defined as descending above or to the hymen), with symptoms, can be treated with ring-shaped pessaries
- However, a pessary can be tried for all grades of prolapse
- A pessary will work best if the uterus is present
- For a patient who has symptoms, a pessary can be an excellent alternative to surgery or can help to control symptoms until surgery is performed
- If the patient cannot undergo surgery due to the presence of medical or other disorders, prefers non-surgical treatment, or wants to have children and wishes to conserve fertility.
- Physiotherapy and rehabilitation supports in 1st and 2nd grade uterine prolapse with life style modification and education.

Counselling patients about the option of using pessaries is important. The patient has to be comfortable with a foreign object in her vagina and be willing to remove and clean it on an ongoing basis, or have a health care provider do so.

Insertion of ring pessary.

A successfully inserted vaginal pessary can reposition the descended uterus and pelvic organs and improve urinary incontinence. Refer for assessment and management.

REFERRAL

- Failure of pessary
- Other symptoms/signs – Urinary symptoms, non-healing ulcer
- Patient opting for surgery.
- Patients who need surgery

3. FISTULA

A fistula is an abnormal opening between a woman's genital tract and her urinary tract and/or rectum, resulting in most cases in involuntary loss of urine, in some cases of stool.

DIAGNOSTIC FEATURES

Screening for urinary fistula in the community

1. Does she experience leaking of urine or faeces or both, through the birth canal all the time, during the day and night, even when she is not trying to urinate or defecate?
2. If yes to Q1, did this leaking start after she delivered a baby or had a stillbirth?
3. If yes to Q1, did this leaking start after any operation in the lower abdomen (hysterectomy, C-Section)

History

The client reports constant leakage of urine, 24 hours per day, no matter what activity she might be engaged in.

Examination

Examination of the client must include direct observation of urine passing from the vagina.

MANAGEMENT

Conservative treatment (if referral is not possible)

If the fistula developed recently, insert an indwelling Foley catheter (16 or 18 French):

- If there is no urine in the urobag, and she continues to leak urine through the vagina, REFER
- If the catheter drains urine, keep the catheter for four weeks, while reviewing her weekly
 - o If the urinary leakage reduces and then stops completely in four weeks, keep the catheter in for another week, i.e., a total of five weeks. If the patient has been cured; the catheter can be removed.
 - o If leakage continues after four weeks of catheterisation, refer her for surgery to the nearest fistula/ urogynaecology centre as below.

REFERRAL

- All cases of suspected fistula.
- Refer for rehabilitation and physiotherapy support to regain active life and improve the quality of life even after surgery.

Referral centres

- Kathmandu Model Hospital, Kathmandu
- BP Koirala Institute of Health Sciences
- Surkhet Provincial Hospital – Fistula Hospital
- Refer the patient, only after calling the hospital and setting up an appointment at the referral hospital.

4. CERVICAL CANCER – VIA, COUNSELLING AND REFERRAL

Cervical cancer is the commonest cancer in Nepalese women. It results from uncontrolled growth of abnormal cells on the cervix. The main cause of cervical cancer is Human Papilloma Virus (HPV), transmitted through sexual contact. Cervical cancer is preventable, by cervical cancer screening through Visual Inspection of Cervix with Acetic Acid (VIA). It is also curable if diagnosed in the early stages.

DIAGNOSTIC FEATURES**Cervical Cancer Screening**

- Screening is testing of all women without any symptoms, who are 30-60 years, and those living with HIV
- Screening aims to detect precancerous changes – Cervical Intraepithelial Neoplasia (CIN) – which, if not treated, may lead to cancer
- The test used for screening for cervical cancer is VIA
- Screening should be repeated every five years.

History

In the early stages, the woman has no symptoms. Therefore, screening is the only way to diagnose the condition.

Symptoms

- Irregular vaginal bleeding – often post-coital
- Foul-smelling vaginal discharge
- Pain in the lower abdomen/back pain
- Leg swelling.

Identify risk factors

- Many sexual partners
- Has a sexual partner who has had many other sexual partners
- Has other STIs, such as herpes, chlamydia, gonorrhoea
- Has weak immune system (women living with HIV)
- Has had many pregnancies
- Was very young when she had her first birth
- Smoker

Differential diagnosis

Abortion (in premenopausal woman) – Perform pregnancy test

STI – vaginal discharge – Syndromic treatment

Abnormal uterine bleeding.

MANAGEMENT**Prevention of cervical cancer**

- Single partner – Prevent STIs, HIV and cervical cancer
- Prevent many pregnancies – Use FP
- Prevent early first pregnancy – Delay marriage to age 20 years and delay first pregnancy through FP
- Quit tobacco.
- HPV vaccination

REFERRAL

- For VIA and further assessment.
- Suspicion of cancer growth on cervix.

5. BREAST LUMPS AND CANCER

Breast cancer is among the commonest cancers among women in Nepal, after cervical cancer. One in ten women presenting with a new breast lump will have cancer. Early diagnosis is the cornerstone for improving breast cancer outcome and survival.

DIAGNOSTIC FEATURES**History**

Characteristics of benign and malignant breast mass:

Benign Breast lesion	Malignant Breast lesion
Smooth and rubbery in consistency	Hard
Often Painful	Painless lesion mostly
Well defined edge	Irregular edge
Easily moves under skin	Fixation to chest or skin
Skin retraction is less likely	Skin retraction can occur
Green/Yellow coloured nipple discharge	Unilateral bloody nipple discharge
No Axillary Lymph node present	Associated Axillary Lymph node present
No features of metastasis	Features of metastasis- Haemoptysis, Pleural effusion, bone pain, Ascites

- Breast cancer risk factors:
 - o Family history of breast or ovarian cancer
 - o Past medical/surgical history/radiation exposure to the chest.

Physical Examination: A complete Clinical Breast Examination (CBE) includes an assessment of both breasts and the chest, axillae, and regional lymph nodes. In premenopausal women, the CBE is best done in the week following menses, when breast tissue is least engorged.

Systematic approach:

- Visual inspection with patient sitting and supine
- Patient supine with one arm raised – palpate tissue in superficial, intermediate and deep tissue planes
- Include examination of axilla, supraclavicular area, neck, and chest wall
- Inspect nipple for discharge.

Normal: General “lumpiness” is normal

Red flags: If suspicious lesions are found, or unsure about mass – counsel patient and refer to a higher centre for further management.

MANAGEMENT

ADVICE

Prevention of breast cancer

- Weight reduction – if overweight
- Reduce/stop alcohol/intake
- Breast self-examination, on the same day every month, two to three days after menses (for menstruating women), as breasts are less tender and painful
- If red flags – See health worker.

REFERRAL

- Suspicious breast mass/unsure of lesion.

PART FOUR

CURATIVE SERVICES

CHAPTER IX

COMMUNICABLE DISEASES

1. HIV/AIDS

AIDS is a preventable disease. It is caused by HIV, which weakens the immune system and damages the body's defence against other diseases. With treatment ART, it is a chronic disease condition. Prevention is the most effective strategy against contracting the disease and its spread.

How is HIV transmitted	How HIV is NOT transmitted
Unprotected sexual contact	Casual contact such as sharing food, shaking hands, hugging, or "dry" kissing
Blood and blood products: blood transfusion, needle sharing, needle stick injury, exposure of skin breaks/wounds or mucous membranes to body fluids like blood, amniotic fluid, CSF, pleural and pericardial fluid	Airborne exposure via person who is coughing or sneezing
From HIV-infected mother to child during pregnancy, labour/delivery and breastfeeding	Insect bites
	Sharing cups, plates etc.
	Work or school contact
	Swimming pools or public baths
	Exposure of unbroken healthy skin to contaminated body fluids

DIAGNOSTIC FEATURES

WHO clinical staging

HIV infection and disease in adult and adolescents has been classified into four clinical stages by the WHO:

Clinical stage 1: Asymptomatic, or persistent generalised lymphadenopathy

Clinical stage 2: Mildly symptomatic: unexplained moderate weight loss (<10%), recurrent respiratory tract infections (sinusitis, tonsillitis, otitis media and pharyngitis), herpes zoster, angular cheilitis, dermatitis or fungal skin infections

Clinical Stage 3: Unexplained severe weight loss (>10%), unexplained chronic diarrhoea, unexplained persistent fever, persistent oral candidiasis, pulmonary TB,

Severe bacterial infections (such as pneumonia, empyema, pyomyositis, bone or joint infection, meningitis or bacteraemia)

Clinical stage 4: HIV wasting syndrome: HIV wasting syndrome, recurrent severe bacterial pneumonia, chronic herpes simplex infection, oesophageal candidiasis, Extrapulmonary TB (EPTB), pneumocystis pneumonia, cryptococcal infections, toxoplasmosis, Kaposi's sarcoma etc.

HIV testing recommendations

Whom to test?

- People with signs and symptoms of HIV/AIDS, opportunistic infections, TB, hepatitis, malnutrition (in children), STIs
- Partners of people with HIV
- Families of index cases
- All key populations (high-risk groups for HIV): People Who Inject Drugs (PWID), Men who have Sex with Men (MSM), transgender, sex workers and their clients, migrant workers and their spouses, prison inmates
- Partners of key populations
- Pregnant women, during labour and even breastfeeding mothers (if not tested during ANC)
- All TB and kala-azar patients.

BHS doesn't cover HIV testing

National HIV testing algorithm:

Assay 1 (A1)	Assay 2 (A2)	Assay 3 (A3)
Determine HIV ½	Uni-Gold HIV ½	Stat pak HIV-1/2
SD Bioline HIV 1 and 2		
ABON HIV ½		
ELISA 1		
ELISA 2		

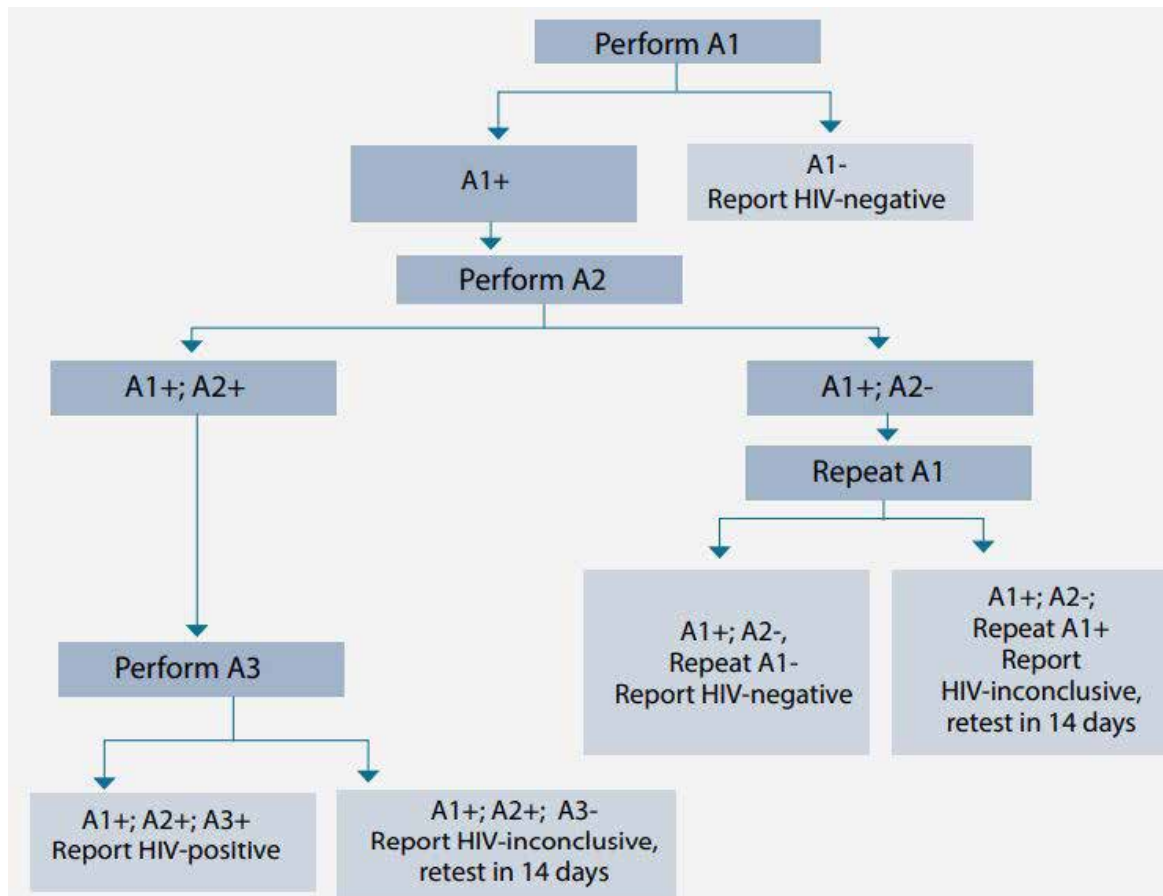


Fig: National HIV algorithm. "A" stands for Assay, "+" indicates positive and "-" indicates negative.

- The national HIV algorithm should be followed for diagnosis of HIV.

COUNSELLING

General counselling

- Everyone should be given an opportunity to ask questions in a private setting if they request so to do
- All HIV testing must be accompanied by appropriate and high-quality post-test counselling, based on the specific HIV test result and HIV status reported
- People who test HIV-negative will usually need only brief health information about their HIV status report, how to prevent acquisition of HIV in the future and where and how to link to HIV prevention services, as appropriate
- In people with recent high-risk exposure (for example, rape victims, needle stick injuries with known HIV-positive blood), advise to re-test after “window period” (between 14–48 days)
- People with significant ongoing risk may need more active support and linkage to HIV prevention services
- Everyone who is diagnosed HIV-positive, including couples where one or both are diagnosed HIV-positive, should receive post-test counselling.
- Refer for HIV testing, pre-test and post-test counselling for “Whom to test” group.

When to start ART?

Any HIV-positive individual, irrespective of Cluster of Differentiation 4 (CD4) count or clinical stage, as soon as found positive.

Management of TB in HIV patients

Management of TB starts with intensified TB case finding. TB screening should be performed (**TB screening questionnaire**- current cough, or fever, or unexplained weight loss or night sweats) for all new HIV-infected clients on their first visit, taking a full initial history and conducting a physical examination.

TB Preventive Therapy (TPT): Preventive therapy against TB is the use of anti-TB drugs in individuals with latent mycobacterium TB infection regardless of CD4 cell count or ART status in order to prevent progression to active disease.

Preventive treatment regimen: For adults: Isoniazid (INH) 300mg daily for six months, vitamin B6 25mg/day (pyridoxine) should be given together with IPT for six months. For children: six months of IPT (10mg/kg BW/day).

All HIV-infected patients with diagnosed active TB should be put on TB treatment immediately: Anti-Tubercular Therapy (ATT) to be started first, followed by ART as soon as possible within the first eight weeks (two weeks if CD4 <50).

Cotrimoxazole Prophylactic Therapy (CPT): is given as below, to prevent opportunistic infections occurring, mainly in 3rd and 4th stage disease:

- All adults and children of WHO clinical stages 3 and 4
- All adults with CD4 count less than 350
- All HIV-exposed children from six weeks of age until exposure (breastfeeding) stops and child is determined to be HIV-negative by age-appropriate test after window period.

For adults: Cotrimoxazole: Tab Sulfamethoxazole (SMX) 800mg and TMP 160mg once daily (one Double Strength (DS) tablet or two Single Strength (SS) tablets)

For children: All HIV-exposed children and HIV-infected children should receive CPT irrespective of WHO staging.

PMTCT – See Chapter VII, Section 8.

Care and support of People Living with HIV (PLHIV)

Provide care and support, such as nutrition counselling, psychosocial support, pain and palliative care management (see Chapter X, Section 8B).

REFERRAL

- All HIV-positive patients should be referred appropriate facility for HIV testing services and ART centres for further management.
- Refer for screening for HIV if suspected.

2. TUBERCULOSIS

TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis* (MTB). It typically affects the lungs (pulmonary TB) but can also affect other sites (EPTB): any organ in the body can be affected.

TREATMENT

Treatment for all new cases, all complicated new cases and non-resistant retreatment cases is the same: The New Treatment Regimen, 2HRZE/4HR. Meanwhile, treatment for retreatment cases is based on results of GeneXpert MTB/RIF tests and Line Probe Assay (LPA) results. {HRZE = isoniazid (H), rifampin (R), pyrazinamide (Z), and ethambutol (E)}; Rifampicin (RIF)

The Category II regimen should no longer be used in Nepal.

TB Treatment Categories and regimens:

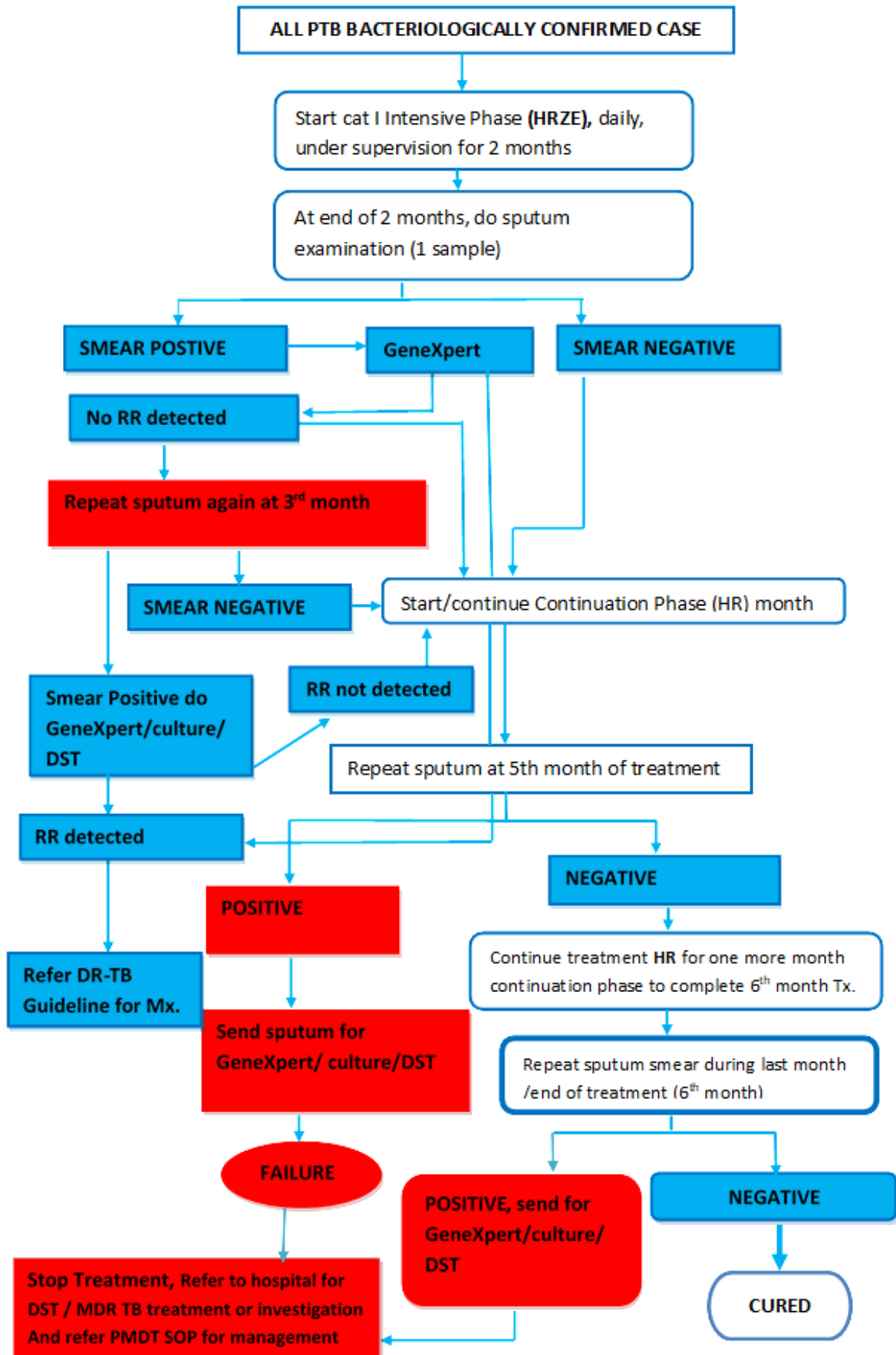
Diagnostic features of pulmonary TB:	EPTB: Extrapulmonary: organ-specific symptoms
<ul style="list-style-type: none"> • Cough more than two weeks • Any cough with additional symptoms such as: <ul style="list-style-type: none"> - Fever (usually in the evening and night) - Blood-stained sputum - Night sweats - Chest pain - Weight loss - Loss of appetite 	<ul style="list-style-type: none"> • Lymph nodes: Painless enlarged, matted and pus discharge from lymph node later • Meningeal: Headache, fever, neck stiffness, drowsiness, unconsciousness, coma • Abdominal: Abdominal pain, diarrhoea alternating with constipation, abdominal lump, ascites • Miliary TB: Fever, malaise, weight loss, hepato-splenomegaly • Genitourinary: Recurrent UTI, frequency of urine • Pleural/pericardial: Chest heaviness, dyspnoea • Low-grade fever

**BHS does not cover TB treatment
Only covered in program facility**

TB Treatment regimen

TYPE OF TB		INTENSIVE PHASE	CONTINUATION PHASE
New TB cases <ul style="list-style-type: none"> - Adult and Childhood - Bacteriological or clinically diagnosed - Pulmonary or extra-pulmonary 		2HRZE	4HR
Complicated/Severe EP cases (CNS TB, TB Pericarditis, Musculoskeletal TB, Miliary TB etc.)		2HRZE	7- 10 HRE *
Retreatment cases All forms: 1st Rapid DST with Xpert MTB/RIF testing should be done to see the status of resistance to Rifampicin Followed by LPA among those having MTB+ve and Rifampicin sensitive for Isoniazid (INH) resistance status.	Xpert MTB/RIF– Rifampicin sensitive LPA – Isoniazid sensitive	2HRZE	4HR
	Xpert MTB/Rif– Rifampicin sensitive LPA – Isoniazid Resistant and FQ sensitive	6 (H)RZE + Levofloxacin (Full Duration)	
	Xpert MTB/Rif– Rifampicin sensitive LPA – Isoniazid Not known because of no access to LPA	6 HRZE (Full duration)	

Flow Chart for Management of Bacteriologically Confirmed Cases



Curative Services

New Treatment Regimen for all TB cases (PTB & EPTB) and adult dosages

Regimen	INITIAL PHASE (2 MONTHS)	CONTINUATION PHASE (4 MONTHS)
	2 (HRZE)	4 (HR)
Daily - 56 total doses	Daily - 112 total doses	
Drugs per adult FDC tablet (INH [H] 75mg + Rifampicin [R] 150mg + Pyrazinamide [Z] 400mg + Ethambutol [E] 275mg)	(INH [H] 75mg + Rifampicin [R] 150mg)	
Patient's Weight		
30-39kg	2	2
40-54kg	3	3
55-70kg	4	4
Over 70kg	5	5

Note: H-INH, R-Rifampicin, Z-Pyrazinamide, E-Ethambutol, HRZE (75mg+150mg+400mg+275mg) formulation available

Paediatric dosage of anti-TB medicines:

Weight bands	Number of tablets		
	Intensive phase	Continuation phase	
	HRZ	E	HR
	50/75/150	100	50/75
4-7.9kg	1	1	1
8-11.9kg	2	2	2
12-15.9kg	3	3	3
16-24.9kg	4	4	4
>25kg	Use adult dosages and preparations		

TB medication side effects and management

Medicine	Side effects	Management
INH	Paraesthesia, numbness, muscle pain, jaundice	Give Tab pyridoxine 100mg OD and 10mg once symptoms resolve for paraesthesia
Rifampicin	Hepatitis, rashes, red-coloured urine	Reassurance for red-coloured urine Antihistamine for itchy rashes Reassurance for mild nausea, anti-emetics for vomiting. Stop and refer if symptomatic jaundice occurs
Pyrazinamide	Hepatitis, gout	NSAID for gout
Ethambutol	Blurred vision, colour blindness	Stop the drug and refer

REFERRAL

- Failure cases, non-converters and those with major side effects need to be referred to higher centres.
- Follow National TB guideline for management of TB in general and DR TB.

3. ANIMAL BITE AND RABIES

Rabies is a vaccine-preventable zoonotic disease transmitted from animals to humans, which is caused by the Rabies Virus (RABV). Transmission of RABV by dogs is responsible for up to 99% of human rabies cases in rabies-endemic regions.

There are two clinical manifestations of rabies:

- Furious form (classical) – widely recognised form, OR
- Paralytic form.

Rabies is transmitted through direct contact between the virus (e.g. in contaminated saliva), and mucous membranes or wounds. Human infection most frequently occurs following a transdermal bite or scratch from an infected animal.

The period from the bite to developing symptoms can be as short as five days and as long as several months.

DIAGNOSTIC FEATURES

Signs and Symptoms of Rabies in Human

Initial symptoms:	Later:
Pain, paraesthesia at the wound site	Hyperactivity
Fever	Fluctuating consciousness, hallucination hydrophobia (furious rabies)
	Paralysis and coma (paralytic rabies)
	Followed by death

WHO Classification of Exposures should be followed for deciding the treatment.

CATEGORY OF EXPOSURE	TYPE OF CONTACT
Category I (No Exposure)	Touching or feeding of animals
	Animal licks on intact skin
Category II (Exposure)	Nibbling of uncovered skin
	Minor scratches or abrasions without bleeding
Category III (Severe exposure)	Single or multiple transdermal bites or scratches
	Contamination of mucous membrane or broken skin with saliva from animal licks
	(Exposure due to direct contact with bats)

LABORATORY DIAGNOSIS

A diagnosis of rabies is usually based on clinical features and dog bite history.

PEP FOR RABIES

1. Local wound treatment

- Wounds should be thoroughly washed and flushed immediately with soap and water for at least 10–15 minutes.
- Local antiseptics (viricidal topical preparation) like povidone iodine should be applied on the wounds after washing. Do NOT suture the wound
- TT prophylaxis should be given when necessary.

BHS doesn't cover RIG

2. Rabies Immunoglobulin (RIG)

The role of RIG in passive immunisation is to provide neutralising antibodies at the site of exposure before patient start producing their own antibodies as a result of vaccination. RIG is administered only once, around the wound, preferably at or as soon as possible after initiation of post exposure vaccination. RIG is not indicated beyond 7 days after first dose of Rabies Vaccine.

Maximum dose of RIG: Human RIG – 20 IU/kg BW, Equine RIG – 40 IU/kg BW.

The entire immunoglobulin is infiltrated into the wound or exposure site.

3. Rabies vaccine

For PEP, vaccines are administered by the ID route. The WHO-approved regimen for ID route is the one-week, two-site regimen (2-2-2-0-0). This regimen is evidence-based, saves time and ensures compliance.

PEP by category of exposure

	Category I	Category II	Category III	
Immunologically (non-immunised) of all age groups	PEP not required	Wound washing and vaccination	Wound washing and vaccination and RIG administration	
Dose	Route	Schedule	No. of injection sites per clinic visit	Site
0.1ml each site	ID	Day 0, 3, 7	2-2-2-0-0	Deltoid

PEP for re-exposure

	Category I Exposure	Category II Exposure and vaccination	Category III Exposure
Previously immunised individuals of all age groups	Wound-washing No PEP required Vaccination- Day 0, 3 Dose: 0.1ml, ID, Deltoid No. of Injection sites:1-1-0-0-0	Wound-washing Vaccination: Day 0, 3 RIG is not indicated	

ADVICE

- PEP is not indicated for individuals bitten by rodents (unless the rodent shows signs or tests positive for rabies)
- PEP is NOT advised after drinking milk, including breast milk, and sharing food with a person who had rabies, or from a rabies-infected person or animal.

COORDINATE WITH the respective Health Coordinator at the municipal level and the Provincial Health Office (PrHO) and at the Provincial Health Directorate. Notify the concerned authority if there is rabies in the community.

REFERRAL

- If rabies vaccine is not available
- For WHO grade III wound – for RIG.

4. MALARIA

Malaria is a preventable and treatable acute public health problem. The country is set to achieve Malaria Elimination by 2026, which means zero indigenous malaria cases by the year 2026.

Malaria is caused by Plasmodium (protozoan blood parasites) after being injected by female anopheles' mosquito. Causative agents: Plasmodium vivax, falciparum, malariae, knowlesi and ovale. P. vivax is the most important causative agent of human malaria in Nepal. About 70–85% of malaria cases are due to P. vivax.

DIAGNOSTIC FEATURES

Case definition:

- Suspected Case: A suspected malaria case is an individual with an illness suspected by a health worker to be caused by malaria, generally based on the presence of fever with or without other symptoms in an area with malaria prevalence or after travel to such an area. All suspected malaria should be tested by RDTs or microscopy.
- Malaria Case: Occurrence of malaria infection in a person in whom the presence of malaria parasites in the blood has been confirmed by a diagnostic test (quality-assured RDT or microscopy).
- Severe Malaria: Acute malaria with severe signs and/or evidence of vital organ dysfunction.
- Uncomplicated Malaria: Symptomatic infection with malaria parasitaemia without severe signs and/or evidence of vital organ dysfunction.

Clinical assessment of suspected malaria cases:

A complete history should also include:

- General information such as age, place of residence
- History of recent travel within or outside the country
- Enquiry about the following symptoms:
 - Fever
 - Chills (feeling cold) and rigors (shaking of the body)
 - Headache
 - Joint pain/weakness or tiredness.

NOTE: All clients suspected of having malaria should have a diagnostic test

Clinical features of severe malaria:

- Impaired consciousness/coma
- Prostration: Generalised weakness so that the patient is unable to sit, stand or walk without assistance
- Convulsion, especially multiple convulsions
- Deep breathing and respiratory distress
- Acute respiratory distress syndrome: Oxygen saturation <92% on room air with a RR >30/min, often with chest indrawing and crepitations on auscultation
- Circulatory collapse or shock: SBP <80mm Hg in adults and <50mm Hg in children
- Renal impairment
- Clinical jaundice plus evidence of other vital organ dysfunction
- Abnormal bleeding: recurrent or prolonged bleeding from nose, gums or venepuncture sites; hematemesis or melena.

BHS doesn't cover RDT testing

Diagnostic tests:

- BHCC: RDT will be used to test all suspected malaria
- District/Zonal or Higher Centres: Microscopy will be used. RDT when busy/off-hours.

MANAGEMENT

1. Treatment of vivax malaria

First-line treatment

The first-line treatment for vivax malaria is Chloroquine for three days and primaquine for 14 days.

Chloroquine is given at an initial dose of 10mg base/kg BW, followed by 10mg/kg BW on the second day and 5mg/kg BW on the third day. The table below summarises the treatment schedule based on approximate age-based weight bands.

Dosage for Chloroquine by age group

Days	Medicine	AGE (years)				
		< 1 year	1-4	5-9	10-14	> 14
1	Chloroquine tablet (150mg)	½	1	2	3	4
2	Chloroquine tablet (150 mg)	½	1	2	3	4
3	Chloroquine tablet (150 mg)	½	½	1	1½	2
TOTAL		1½	2½	5	7½	10

Each tablet of Chloroquine contains 150mg base

Dosage and follow-up schedule for primaquine by age group

Days	Medicine	Age in years					Follow-up schedule
		6 months <1*	1-4	5-9	10-14	>14	
1	Primaquine (7.5mg)	Nil	½	1	1½	2	
2	Primaquine (7.5mg)	Nil	½	1	1½	2	
3	Primaquine (7.5mg)	Nil	½	1	1½	2	
4-6	Primaquine (7.5mg)	Nil	½	1	1½	2	
7	Primaquine (7.5mg)	Nil	½	1	1½	2	
8-13	Primaquine (7.5mg)	Nil	½	1	1½	2	
14	Primaquine (7.5mg)	Nil	½	1	1½	2	
TOTAL TABLETS		Nil	3½	7	10½	14	

(*2.5mg tablet of primaquine should be given, 1 Tab daily for 14 days in 6 months - 1 year)

2. Treatment of *P. falciparum* malaria and mixed infection

The clinical objectives of treating uncomplicated falciparum malaria are to cure the infection as rapidly as possible and to prevent progression to severe disease. "Cure" is defined as elimination of parasites from the body. The public health objectives of treatment are to prevent onward transmission of the infection to others and to prevent the emergence and spread of resistance to antimalarial drugs.

First-line treatment

The first-line treatment for falciparum malaria is Artemether + Lumefantrine (AL) given over three days and a single dose of primaquine.

Reducing the transmissibility of treated *P. falciparum* infections

- To reduce transmission – Primaquine single dose of 0.25mg/kg BW – (except in pregnant women, infants aged <6 months and women breastfeeding infants aged <6 months). Testing for G6PD is not required.
- For ease of monitoring and to ensure compliance, primaquine should be given on day one along with the first dose of AL as directly observed treatment.

Dose Regimen of AL by age and weight group

		AL (20mg/120mg Artemether and Lumefantrine)						Primaquine (0.25mg/kg BW)
Weight	Age (yrs)	Day 1		Day 2		Day 3		
		First Dose	After 8hrs	Morning	Night	Morning	Night	
<15kg	<3	1 Tab	1 Tab	1 Tab	1 Tab	1 Tab	1 Tab	½ tablet (excluding breastfeeding infants less than 6 months of age)
15-25kg	3-9	2 Tabs	2 Tabs	2 Tabs	2 Tabs	2 Tabs	2 Tabs	1 Tab
25-35kg	10-14	3 Tabs	3 Tabs	3 Tabs	3 Tabs	3 Tabs	3 Tabs	1.5 Tabs
≥35kg	≥14	4 Tabs	4 Tabs	4 Tabs	4 Tabs	4 Tabs	4 Tabs	2 Tabs

Second-line treatment

The recommended second-line option in Nepal is Dihydroartemisinin + Piperaquine (DHAP). The longer half-life of piperaquine gives it an advantage over lumefantrine in the treatment of vivax malaria. DHAP is given over three days (dihydroartemisinin at a dose of 4mg/kg BW per day and piperaquine at 18mg/kg BW per day once a day for three days).

It is programmatically most suitable to have the same medicines as second-line for both vivax and falciparum malaria.

A second-line antimalarial should be used in the following situations:

- Where a patient does not tolerate or has adverse reactions to the first-line medicine
- Recrudescence (treatment failure) – reappearance of symptoms and parasites within 28 days following initial antimalarial treatment with the first-line drug
- Suspected CQ-resistant vivax infection – all cases imported from areas with CQ-resistant infections (Mekong Region, countries in South America and Africa, Indonesia, Timor Leste and Papua New Guinea) should be considered as potentially CQ-resistant and treated with second-line medicine.

When a patient needs second-line treatment in the conditions given above, refer the patient to higher centres.

3. Severe Malaria

Severe malaria is most commonly caused by infection with *Plasmodium falciparum*, although *P. vivax* and *P. knowlesi* can also cause severe disease. The risk is increased if treatment of an uncomplicated attack of malaria caused by these parasites is delayed. Recognising and promptly treating uncomplicated malaria is therefore of vital importance. See clinical features of severe malaria above in this chapter.

Treatment of severe malaria

- IV or IM artesunate for at least 24 hours and until the patient can tolerate oral medication. Once a patient has received at least 24 hours of parenteral therapy and can tolerate oral therapy, complete treatment with a full course of AL
- Children weighing <20kg should receive a higher relative dose of artesunate (3mg/kg BW per dose) than larger children and adults (2.4mg/kg BW per dose).

Pre-referral treatment:

If a severe malaria case cannot be managed at the health facility, the patient should be referred to hospital with one single IM dose of Inj artesunate and referred to higher facility.

4. Treatment of uncomplicated malaria in special groups

4.1. Pregnant women and lactating mothers

- Vivax malaria should be treated with CQ as in non-pregnant women; however, the use of primaquine to prevent relapse is contraindicated in pregnancy and lactating mothers. The treatment regimen for pregnant women and lactating mothers presenting with vivax malaria is as below:
 - CQ (25mg/kg BW) over three days to cure the current blood stage infection, then
 - CQ 300mg every week as chemoprophylaxis for the remaining duration of the pregnancy and until the breastfed baby is six months old. Once the breastfed baby is older than six months of age, the mother should receive a 14 course of primaquine to ensure radical cure.
- Falciparum malaria: Falciparum malaria during pregnancy carries a high mortality for the foetus and increased morbidity for the pregnant woman. Treat pregnant women in all trimesters and lactating mothers with the first-line Artemisinin-based Combination Treatment (ACT) – AL – as in non-pregnant women.

4.2. Children less than 5kg

- Malaria in children less than 5kg can be serious and may progress to severe disease with increased risk of dying if not treated promptly. ACTs are safe and well tolerated by young children. AL can be used in uncomplicated malaria in infants and young children, but attention must be given to accurate dosing and the care provider must ensure that the administered dose is retained.

REFERRAL

- Severe malaria, those who cannot take oral therapy, known personal or family history of G6PD deficiency, malaria with other comorbidity, adverse reaction to first-line treatment, recurrent malaria, and second-line treatment.

5. LEPROSY

Leprosy is an infectious disease caused by *Mycobacterium leprae* that involves the skin and peripheral nerves. The transmission is by the respiratory route (nasal discharge from untreated patients).

CAUSATIVE ORGANISM

Mycobacterium leprae

CLASSIFICATION (WHO)

Based on the number of skin lesions present.

1. Paucibacillary (PB): a case of leprosy with one to five skin lesions, without demonstrated presence of bacilli in a skin smear
2. Multibacillary (MB): a case of leprosy with more than five skin lesions; or with nerve involvement (pure neuritis, or any number of skin lesions and neuritis); or with the demonstrated presence of bacilli in a slit-skin smear, irrespective of the number of skin lesions.

DIAGNOSTIC FEATURES (by finding at least one of the following cardinal signs):

- Hypopigmented or reddish skin lesion with definite loss of sensation
- Thickened or enlarged peripheral nerves with loss of sensation and/weakness of the muscles supplied by that nerve
- Presence of Acid-fast Bacilli (AFB) in a slit skin smear.

BHS doesn't cover AFB testing

MANAGEMENT

Drug treatment: First-line multidrug therapy includes dapsone, rifampicin and clofazimine. Drug therapy is to be given under the advice and supervision of the Leprosy Control Programme.

The new revised leprosy guideline recommends the same three-drug regimen with rifampicin, dapsone and clofazimine for all leprosy patients.

Age group	Drug	Dosage and frequency	Duration	
			MB	PB
Adult	Rifampicin	600mg once a month	12 months (12 blister packs of 28 days each)	6 months (6 blister packs of 28 days each)
	Clofazimine	300mg once a month, 50mg daily		
	Dapsone	100mg daily		
Children (10-14)	Rifampicin	450mg once a month	12 months	6 months
	Clofazimine	150mg once a month, 50mg on alternate days		
	Dapsone	50mg daily		
Children <10 years or <40kg	Rifampicin	300mg once a month	12 months	6 months
	Clofazimine	100mg once a month, 50mg twice weekly		
	Dapsone	50mg on alternate daily		

Adverse effects of Multi-drug Treatment (MDT):

1. Clofazimine – change in skin colour, abdominal pain
2. Dapsone – Headaches, nausea, itchy skin rash
3. Rifampicin – Hepatitis, skin rashes, red-colored urine.

ADVICE

- Reassurance about the disease, that: it is treatable; it is not the result of a curse from the gods but a bacterial infection; it is important to take the full course of drugs
- Teach about foot and hand care to prevent wounds and ulcers (Refer: National Leprosy Programme Program Implementation Guidelines, 2075/2019)
- Annual examination is recommended to identify ulcers and prevent them.

REFERRAL

- All suspected cases – for diagnosis
- If complications occur during treatment, if the drugs have severe side effects, or if there is a diagnostic dilemma.

6. KALA-AZAR

Kala-azar is a protozoal disease caused by parasites of the genus *Leishmania* and transmitted to humans by the bite of female phlebotomine sand-fly. Twenty three districts of Nepal are considered as endemic for kala-azar as of 2020; however, an increasing number of cases has been reported from other districts in recent years.

CASE DEFINITION OF KALA-AZAR

- **Probable kala-azar:** A person living in or having travelled to kala-azar endemic areas showing clinical signs and symptoms of kala-azar (mainly irregular fever lasting more than two weeks and splenomegaly and/or weight loss).
- **Confirmed kala-azar case**
 - o **Laboratory-confirmed:** A probable kala-azar case with laboratory confirmation either serological and/or parasitological and/or positive by PCR or related techniques
 - o **Clinically confirmed:** A probable kala-azar case that has not been confirmed by any laboratory test but is assessed by a clinician to be a confirmed kala-azar case based on clinical grounds.

DIAGNOSTIC FEATURES

Symptoms: Fever (>two weeks), progressive weight loss, abdominal swelling (organomegaly), epistaxis, easy bleeding, leg swelling, swallowing difficulty, early satiety, vomiting, jaundice, cough, diarrhoea

Signs: Oedema, jaundice, fever, splenomegaly (non-tender with smooth surface – most specific sign), pallor, malnutrition in the form of low BMI, hepatomegaly – less common than splenomegaly, tachycardia

Cutaneous Leishmaniasis (CL): Typical skin lesions (macule, plaque, nodule, ulcer) in a person living in or having travelled to endemic areas. Face, neck and legs are common sites

Post-kala-azar Dermal Leishmaniasis (PKDL): Symmetrical multiple hypopigmented macules, papules or nodules without loss of sensation, in a patient with previous visceral leishmaniasis

Mucocutaneous Leishmaniasis (MCL): Mucosal lesions including nodules, infiltration, obstruction, mutilation. Commonly involves nose, mouth and upper respiratory tract

Diagnostic test: rK-39 RDT

BHS doesn't cover rK-38 RDT

MANAGEMENT ADVICE

- Prevention of sand fly bites includes sleeping under long-lasting insecticidal nets, using protective clothing, insect repellents and destroying sand-fly habitat (cracks and crevices in wall)
- Visit health facility to measure treatment outcome at the end of treatment or 15 days after the treatment and six months after the last drug was taken for final assessment
- Supportive care: Maintain hydration with fluids, maintain skin hygiene
- Motivate family to complete treatment.

COORDINATION AND NOTIFICATION:

Coordinate with respective municipal-level Health Chief, PrHO at Provincial Health Directorate and WHO provincial health focal point if outbreak occurs.

REFERRAL

- Use RDT (rK39) for diagnosis and if found positive refer to designated secondary hospital or higher-level kala-azar treatment centres.

7. DENGUE

Dengue is a mosquito-borne tropical disease caused by the Dengue Virus (DENV). The day-active Aedes mosquito is the vector. Dengue fever is endemic in Nepal with several outbreaks reported in recent years.

Case definition:

- Suspected cases: An acute febrile case from endemic areas with any of below clinical presentation and no other cause.
- Definite cases: Clinical suspicion with positive antigen detection test.

DIAGNOSTIC FEATURES

Dengue without warning signs	Dengue with warning signs	Severe Dengue
<p>The person lived or travelled in an area of dengue transmission in the last 14 days, has a sudden high fever typically of 2 to 7 days duration, and presents TWO or more of the following manifestations:</p> <ul style="list-style-type: none"> -Nausea, vomiting -Exanthema/rash -Myalgia/arthritis -Headache, retro-orbital pain - Petechiae or tourniquet test positive -Leukopenia 	<p>Dengue (as defined to the left) with any of the following:</p> <ul style="list-style-type: none"> -Abdominal pain or tenderness -Persistent vomiting - Clinical fluid accumulation (e.g. ascites, pleural effusion) -Mucosal bleeding -Lethargy, restlessness -Liver enlargement > 2 cm -Laboratory: increase in hematocrit, concurrent with rapid decrease in Platelet count. 	<p>Dengue with at least 1 of the following:</p> <ul style="list-style-type: none"> -Severe plasma leakage leading to shock (dengue shock syndrome) or fluid accumulation with respiratory distress -Severe bleeding (as evaluated by a clinician) -Severe organ involvement (i.e., AST or ALT 1000 or greater, impaired consciousness, organ failure).

Diagnostic tests: Dengue RDT

Supportive test: Hb%, complete blood check-up, liver function test.

BHS doesn't cover RDT, CBC, LFT testing

MANAGEMENT**Treatment:**

- Tab paracetamol 500mg four times daily for fever
- ORS - for moderate dehydration
- Avoid NSAIDs, steroids, antibiotics.

ADVICE

- Encourage patient to drink plenty of fluids, cold sponging for fever
- Prevention of mosquito bites is the first line of defence against dengue fever
- Measures to prevent mosquito bites include using protective clothing and insect repellents (sleeping under long-lasting insecticidal nets is less effective, as the Aedes mosquito is active during the day).

COORDINATION AND NOTIFICATION OF DENGUE: Coordinate with respective municipal-level Health Chief, PrHO and at Provincial Health Directorate for reporting, and notify for further care.

REFERRAL

- Any reported/suspected dengue case should be referred to hospital.

8. LYMPHATIC FILARIASIS

Lymphatic Filariasis (LF), commonly known as elephantiasis, is a mosquito-borne parasitic disease. It is a painful and highly disfiguring neglected tropical disease.. In Nepal, *W. bancrofti* is the only recorded parasite causing LF and believed to be transmitted through the *Culex quinquefasciatus* mosquito.

DIAGNOSTIC FEATURES

- Swelling of limbs
- Long duration except in early cases
- Asymmetrical involvement when bilateral
- Reversible and pitting in early stages
- Later persistent, non-pitting
- Skin thickening – folds, nodules, warty lesions
- Recurrent acute episodes
- Entry lesions
- Regional lymph nodes involved.

ADVICE

- Protect from mosquito bite
- Involve in mass drug administration
- Self-care/ immediate treatment for acute attack (lymphoedema).

REFERRAL

- Serious adverse events resulting from DEC
- For surgical correction (hydrocele).

9. GASTROINTESTINAL INFECTIONS

9.A. DIARRHOEA

Diarrhoea is defined as the passage of three or more loose or liquid stools per day (or more frequent passage than is normal for the individual; frequent passage of well-formed stools is not diarrhoea). A child may suffer four to six episodes of diarrhoea per year. In children, the most common cause is rotavirus.

Classification

- Acute: Diarrhoea lasting less than 14 days
- Dysentery: Acute diarrhoea with blood in stool (and often fever, general illness)
- Persistent: Diarrhoea due to infection lasting for more than 14 days
- Persistent diarrhoea in immunocompromised patients: Needs special attention
- Chronic: Diarrhoea of non-infective origin lasting for more than 14 days.

CAUSES

- Acute: Intestinal infections – virus (rotavirus, norovirus, adenovirus etc.), bacteria (E. coli, Salmonella, Campylobacter etc., also includes cholera), protozoa (amoeba, giardia);
Infection outside the intestine – otitis media, UTI, pneumonia, malaria;
Food poisoning due to contamination of food or by Clostridium perfringens, Staph. aureus;
Antibiotic use (Clostridium difficile infection)
- Dysentery – Common: bacterial (Shigella, Campylobacter, Salmonella, E. coli), viral in children (rotavirus or adenovirus)
Less common: Amoebiasis, Clostridium difficile (post antibiotic use),
Rare: Viral haemorrhagic fever (such as Ebola, dengue fever)
- Persistent – Amoebiasis, giardiasis, Cyclospora, worm infestation
- Persistent in immunocompromised patients – HIV, Cyclospora, Isospora, Cryptosporidium, Strongyloides, Microsporidia, HIV enteropathy, cytomegalovirus, Mycobacterium
- Chronic non-infectious – Allergy to cow's milk; allergy to gluten (Coeliac disease), lack of lactose enzyme (lactose intolerance); inflammatory bowel disease (Morbus Crohn, ulcerative colitis), cancer, hyperthyroidism, anxiety disorder; medicine side effects.

DIAGNOSTIC FEATURES

History:

- Assess severity – Frequency and consistency? Blood or mucus in stool?
- Vomiting? Abdominal pain? Able to drink? Any fever?
- Check duration and onset (sudden or gradual)
- History of travel? Local outbreak/other friends and family also affected?
- History of any other illness or chronic infection (including HIV)? History of medication use?
- Are symptoms related to any specific food exposure (cereal, dairy products)?

Examination:

- Assess severity of dehydration – see table below. (Check alertness, eyes, mucous membranes, skin fold, malnutrition)
- Abdominal exam for pain, guarding, masses, distension, abnormal bowel sounds.

Classification of dehydration: first assess your patient for dehydration

Signs	Classify as	Treatments
Two of the following signs: • Lethargic or unconscious • Sunken eyes • Not able to drink or drinking poorly • Skin fold goes back very slowly (>2s) • In children under one year – sunken fontanelle (may have signs of shock, no urine production).	SEVERE DEHYDRATION	Rehydration IV (or with NG tube if IV not possible, or rectal in emergency) – Plan C Continue with ORS consider causes and treat (Could it be cholera? If so, report to Public Health Officer)
Two of the following signs: • Sunken eyes • Drinks eagerly, thirst • Skin fold goes back slowly (2s) • (May also have concentrated urine, tachycardia, dry mouth and lips, headache, leg cramps)	SOME DEHYDRATION	Rehydrate with ORS – Plan B Give fluid and food; consider causes and treat; advice and follow-up
Not enough signs – alert, normal eyes and tears, not thirsty, skin fold goes back quickly, fontanelle normal (in children under one year)	NO DEHYDRATION	Treat diarrhoea at home with ORS – Plan A Advice and follow-up

MANAGEMENT

Treat dehydration if present. After assessment as above choose Treatment Plan A, B or C.

Treatment plan A (to treat diarrhoea at home)

Age	Amount of ORS to give after each loose stool	Amount of ORS to provide for use at home
<24 months	50-100 ml	500 ml/day
2-10 years	100-200 ml	1000 ml/day
≥ 10 years	As much as wanted	2000 ml/day

- Show the mother to mix and give ORS.
- If diarrhoea persists, repeated vomiting, marked thirst, fever, or blood in stool, take the child to health center.

Treatment plan B

Age	Less than 4 months	4-11 months	12-23 months	2-4 years	5-14 years	≥15 years
Approx. (wt. in kg)	Less than 5	5-8	5-8	11-16	16-20	>30
ORS in ml	200-400	400-600	600-800	800-1200	1200-2200	>2200

- Give 75 ml/kg ORS in first 4 hours.
- Use child's age only when weight is not known.
- Reassess the child after 4 hours.

If no signs of dehydration, shift to plan A

If some signs of dehydration, continue plan B

If severe dehydration, shift to plan C.

Treatment plan C

- Start IV fluids immediately.
- Give ORS if the patient can drink while the drip is set up.
- Give 100ml/kg ringer's lactate solution divided as

Age	First give	Then give
<12 months	30ml/kg in 1 hour	70ml/kg in 5 hours
12mnths-5 years	30ml/kg in 30 minutes	70ml/kg in 2 1/2 hours

- Repeat once if radial pulse weak/ not detectable.
- Reassess every 1-2 hours, if hydration not improving give IV drip more rapidly.
- Give ORS (5ml/kg/hour) as soon as patient can drink.
- Reassess and choose plan A, B, or C to continue

Refer URGENTLY to hospital for IV or NG treatment if not responding to initial resuscitation.

Drug Management:

1. Acute dysentery:

If there is blood in the stool, or fever lasting more than 24 hours, or the patient is very sick, and has very frequent, large, watery stools, give:

- Ciprofloxacin 500mg BD for five days OR
- Cotrimoxazole 960mg BD for five days

For paediatric doses, see Chapter XIV, Section 2 (Dosage Charts).

Suspected Cholera: see Chapter IX, Section 9.B.

If there is no response to two different antibiotics after three days, treat with metronidazole 400mg TDS for seven days.

2. Drug-induced diarrhoea (suspected *Clostridium difficile* infection):

- Stop all other antibiotics
- Give metronidazole 400mg TDS for 10 days; for pediatric doses, see Chapter XIV, Section 2 (Dosage Charts).

3. Persistent diarrhoea:

Trial of metronidazole 400mg TDS for 7 days.

If not better, try cotrimoxazole 960mg BD for 14 days (for Cyclospora).

4. In immunocompromised patients: Give metronidazole as above and cotrimoxazole 960mg BD for 14 days.

- If no response to treatment, try albendazole 400mg daily for five days – refer these patients for investigation.

COORDINATION WITH respective municipal-level Health Coordinator and DHO at Provincial Health Directorate if:

- More than five cases of acute gastroenteritis within one community within five days
- Any case of suspected cholera.

REFERRAL

- All cases of severe dehydration should be referred after initial IV hydration
- Refer persistent diarrhoea (>14 days) that is not responding to treatment
- Refer persistent diarrhoea in immunocompromised patients.

9.B. CHOLERA

Cholera is an acute secretory diarrhoeal illness caused by toxin-producing strains of *Vibrio cholerae*. It is generally caused by ingestion of contaminated food or water. Direct person-to-person transmission is rare if good hand hygiene is observed.

DIAGNOSTIC FEATURES

1. Profuse “rice water” stools with flecks of mucus
2. Rapid and persistent vomiting
3. Severe dehydration developing within a few hours (rapid fluid loss)
4. Generally, no fever
5. Other members of the family or neighbours may have similar symptoms.

Suspect a case of cholera in a patient over three years who rapidly develops moderate or severe dehydration from watery diarrhoea.

In severely dehydrated cases (cholera gravis), death may occur within a few hours and case fatality rate may reach 50%.

MANAGEMENT

Drug treatment:

- Rapid assessment of dehydration and manage according to severity (Plan B or C as above – usually Plan C is needed in cholera). Rapid rehydration by IV crystalloids. See Chapter II, Section 2 (Shock) for management of hypovolemic shock. Manage ORS for those who can drink
- Antibiotics – Adult:
 - o Doxycycline Cap 100mg: three stat OR
 - o Azithromycin Tab 500mg: two stat OR
 - o Ciprofloxacin 500mg: PO twice a day for three days

Children under 12:

- o Azithromycin 20mg/kg BW once OR
- o Ciprofloxacin 20mg/kg BW BD for three days: <6 months: 125mg BD; six months to nine years: 250mg BD; adolescents (30–40kg): 250mg BD (if azithromycin not available)
- Observe for: hypoglycaemia, hypokalaemia, pulmonary oedema, kidney failure (no urine)
- Maintain hand hygiene, use PPE (gloves, apron, footwear, mask); isolate patients from others; wash buckets and latrines with chlorine; ensure safe water supply
- Surveillance of persons who shared food and drink with a cholera patient for five days from last exposure.

ADVICE: Maintain proper hygiene, drink boiled water.

COORDINATION AND NOTIFICATION

All suspected Cholera outbreaks should be reported to respective municipal-level Health Chief and PrHO at the Provincial Health Directorate and the EDCD/Department of Health Services (DoHS) for immediate investigation and, if possible, laboratory confirmation. Notification should be done for Pr HO/ local health care unit.

EDCD Tel: 01-4255796; Fax: 01-4262268; Email: ewarsedcd@gmail.com

9.C. AMOEBASIS AND GIARDIASIS

Amoebiasis is a common intestinal infection in Nepal caused by *Entamoeba histolytica* and other amoebas. It is transmitted from an infected person to a healthy one through the faeco-oral route, and through contaminated water or food. *Giardia lamblia* infection may have very similar symptoms and is treated with the same medication.

DIAGNOSTIC FEATURES

- Diarrhoea lasting more than five days and not responding to simple treatment
- Abdominal pain
- Blood and mucous in the stool; may have offensive smell
- Lethargy, flatulence, nausea, and vomiting are also common

MANAGEMENT

Treatment

- Treat dehydration according to severity as in Chapter IX, Section 9.A (Plan A, B or C)
- Adult – Ciprofloxacin 500mg tablets BD for 5 days and Metronidazole 400mg tablet TDS for 5 days
- Children – Metronidazole 10mg/kg BW TDS of 100mg/5ml Syrup (Syr) for 5-10 days according to severity.

ADVICE

- Use a safe toilet and make sure to wash your hands frequently
- Wash raw vegetables and fruit before cooking and eating
- Do not take alcohol during treatment with metronidazole.

9.D. ENTERIC FEVER (TYPHOID FEVER)

Enteric fever is one of the most common causes of persistent fever in Nepal and is caused by *Salmonella typhi* and *paratyphi*. It is transmitted through the faecal-oral route and spreads quickly where sanitation is poor and water supply contaminated.

DIAGNOSTIC FEATURES

- Fever: temperature rises in a step-ladder fashion and patient can have very high fever
- Body-ache, headache and drowsiness. May have very faint rash
- Constipation in the first week followed by diarrhoea later on, but some patients have no GI symptoms
- Sometimes relative bradycardia is seen – i.e., pulse normal or only slightly raised in spite of high fever
- Abdominal distension in the second week
- Spleen becomes palpable from the second week

Diagnosis:

- Mainly clinical.
- To confirm diagnosis, refer to a higher centre for blood culture; Widal test should not be used to diagnose typhoid fever.

MANAGEMENT

General: Treat fever with paracetamol 500–1,000mg PO TDS/SOS, cold sponging for high fever, plenty of fluid.

Drug treatment:

- For adults: Choice of drug is ceftriaxone IV 1g BD OR cefixime 400mg BD for 10–14 days; OR Azithromycin 1g PO OD for five to seven days
- For children: Azithromycin 10mg/kg BW OD for five to seven days; OR cotrimoxazole (40mg/kg BW SMX + 8mg/kg BW TMP – see Chapter XIV, Section 2 (Dosage Charts) – BD for 14 days OR cefixime 5mg/kg BW BD for 10–14 days.

ADVICE

- Fever may take several days to respond to treatment
- Eat soft, easily digestible food of high nutritional value
- Use good personal hygiene.

Prevention:

- Boil drinking water and store it in narrow-mouthed pots with covers
- Appropriate food handling: Wash hands with soap before preparing or eating food, avoid raw food and eat only cooked food.

REFERRAL

- If fever does not subside after seven days of treatment
- If patient develops increasing pallor
- Sudden onset of severe abdominal pain associated with vomiting
- If the patient develops major side effects from the drugs. Advice – stop all drugs, give antihistamine and refer to higher centre.

9.E. INTESTINAL HELMINTHIASIS (WORMS)

The most common helminths (worms) prevalent in Nepal are hookworm (*Ancylostoma*), roundworm (nematodes), tapeworm (*Taenia*), threadworm (*Stroglyoides*) and pinworm (*Enterobia*).

DIAGNOSTIC FEATURES

- Larvae penetrating skin can cause a rash
- Blood loss/loss of nutrients: lethargy and tiredness, pallor
- Lung symptoms: breathlessness on exertion, dry cough
- Abdominal symptoms: abdominal pain, constipation, diarrhoea, gastritis
- Pin worms: itching around anus/vulva, particularly at night (more common in children), sometimes vaginal discharge.

Diagnosis: demonstration of eggs (ova) or worms in stool microscopy (pin worms can sometimes be seen on skin around anus); patient may report worms or tapeworm segments in stool.

MANAGEMENT**Drug Treatment (Patient more than two years of age):**

- Tab albendazole 400mg OD
- Repeat same dose after seven days for suspected hookworm or Strongyloides
- For proven tapeworm, use albendazole 400mg daily for seven days; (if this is not effective, refer: patient may need treatment with praziquantel or niclosamide – NLEM)
- Prevent and treat anaemia with ferrous sulphate 200mg BD; therapy should be continued for three months after Hb level returns to normal.

Treat children one to two years old with half the dose of albendazole.

ADVICE

- Improve personal hygiene – hand washing before eating food and after cleaning young children
- Only eat thoroughly cooked food; wash vegetables and fruit before cooking
- Proper disposal of excreta (use a safe toilet and wash hands afterwards)
- Wear shoes/slippers while walking.

10. RESPIRATORY INFECTIONS**10.A. SEASONAL INFLEUNZA**

Influenza, one of the most common infectious diseases, is a highly contagious airborne disease that occurs in seasonal epidemics and is caused by influenza viruses that infect humans. These viruses are transmissible between humans and are known as seasonal influenza viruses. The incubation period of influenza is two days on average but may range from one to four days in length. Clinically important subtypes are: H1N1 (swine flu), H5N1 (avian influenza), H7N9 (novel avian influenza).

Case definition:**Influenza-like illness (ILI):**

A case with sudden onset of fever over 38°C

AND

An absence of other diagnosis.

Severe Acute Respiratory Infection (SARI)

A case with sudden onset of fever over 38°C

AND

Cough or sore throat

AND

Shortness of breath

AND

Requiring hospital admission.

DIAGNOSTIC FEATURES

Can vary from asymptomatic infection to complicated influenza:

- Asymptomatic infection
- ILL: Acute onset of fever, cough, headache, coryzal symptoms, sore throat, myalgia
- Complications: Respiratory complications (pneumonia, bronchitis, respiratory failure), gastrointestinal symptoms (diarrhoea, vomiting), neurological (encephalitis, transverse myelitis, GBS), cardiovascular (myocarditis, pericarditis), others (otitis media, conjunctivitis, acute renal failure).

MANAGEMENT

For mild illness:

- Analgesics and antipyretics: paracetamol and ibuprofen, oxygen inhalation
- Oral fluids.

For severe complicated illness and risk groups:

- Refer for risk groups:
 - o Risk groups (children <2 years, adults ≥65 years, patients with cardiac/pulmonary disorders such as asthma, COPD, DM etc.), HIV patients, women who are pregnant or less than two weeks after delivery, and those who are hospitalised.

ADVICE

- Uncomplicated influenza typically resolves within seven days but cough and malaise may persist for several weeks
- Maintain proper hygiene: proper hand washing, cover face/mouth with handkerchief during cough/sneeze, stay in well-ventilated area, do not use others' clothes/handkerchiefs
- Get adequate bed rest
- Drink plenty of fluids and eat nutritious food
- Use a facial mask to protect others from transmission
- Steam inhalation
- For prevention, the influenza vaccine is recommended for high-risk groups (may only be available in private sector).

COORDINATION AND NOTIFICATION: Any severe form of seasonal influenza should be notified to the respective municipal-level Health Chief and PrHO at the Provincial Health Directorate. Reporting to the Early Warning and Reporting System (EWARS) to be done.

REFERRAL

- High-risk groups (children <5 years old, pregnant women, adults ≥65 years)
- Severe influenza (complicated influenza)
- Medical conditions – Asthma, chronic lung disease, heart disease, kidney disease, liver disorder, blood disorders, spinal and brain disorder with immunosuppression).

10.B. ACUTE BRONCHITIS

Acute bronchitis is a lower respiratory tract infection (LRTI) involving the large airways (bronchi) without evidence of pneumonia that occurs in the absence of COPD. Viruses are most commonly the cause.

DIAGNOSTIC FEATURES

- Acute bronchitis should be suspected in patients with cough for at least five days (often one to three weeks) who do not have clinical findings suggestive of pneumonia (e.g., fever, tachypnoea, rales or crepitations, signs of parenchymal consolidation) and do not have COPD.

MANAGEMENT

- For most patients with acute bronchitis, symptoms are self-limiting, resolving in about one to three weeks. Reassurance and symptom control are the cornerstones of care. Antibiotics are not recommended for routine use.

ADVICE

Non-pharmacological therapy for cough: throat lozenges, hot tea, honey and smoking cessation.

REFERRAL

- Features of severe pneumonia, haemoptysis, not responding to above treatment.

10.C. PNEUMONIA

An infection within the lung parenchyma is called pneumonia. It is usually caused by viral or bacterial infection. The most common bacteria causing pneumonia are *Streptococcus pneumoniae*, *Haemophilus influenzae* and atypical bacteria.

DIAGNOSTIC FEATURES

- Fever
- Productive cough, sputum may be blood stained
- Shortness of breath and tachypnoea
- Increased RR, especially in children (see Chp V: IMNCI protocol)
- Chest pain on inspiration
- Crepitations or crackles on inspiration may be heard, may have dullness on percussion.

MANAGEMENT

Drug treatment:

- Amoxicillin 500mg TDS for five to seven days OR
- Azithromycin 500mg once daily for three to five days OR
- Doxycycline 100mg BD for five to seven days (do not use doxycycline in children under 12 or in women who may be pregnant)
- Treat fever and pain with paracetamol 500–1,000mg TDS/SOS
- If marked wheeze on auscultation, treat with salbutamol inhalers (or tablets, if inhaler not available).

For paediatric doses, see Chapter XIV, Section 2 (Dosage Charts); for children under five years, see CHp V: IMNCI protocol.

ADVICE

Plenty of fluids, rest, avoid smoking and alcohol, antipyretics.

REFERRAL

- Severe dyspnoea, cyanosis, stridor, no improvement after three to five days of illness, elderly and very young patients, patients with comorbidity.

11. ERUPTIVE SKIN LESIONS**11.A. MEASLES**

An infectious viral illness common in childhood, but affects adolescents and adults. Children too young to be vaccinated are particularly at risk. The incubation period is 7–18 days.

Case definition: Any person with generalised maculopapular rash and fever plus one of the following:

Cough or coryza (runny nose) or conjunctivitis (red eyes)

OR

Any person in whom a clinician suspects measles.

DIAGNOSTIC FEATURES

- Fever + maculopapular rash = suspected measles
- Prodromal stage:
 - o High fever
 - o Cough, coryza and/or conjunctivitis
 - o Koplik's spots, which are pathognomonic of measles, appear on the buccal and lower labial mucosa opposite the lower molars one to two days before rash onset and may be noted for another one to two days after rash appears.
- Rash:
 - o Two to four days after prodromal stage
 - o Appears 14 days after exposure
 - o Erythematous maculopapular eruption
 - o Moves from face to trunk, then to arms/legs
 - o Persists for five to six days. Fades in order of appearance.

MANAGEMENT**Drug treatment:**

- Vitamin A supplementation: first dose – day 0; second dose – day 1 (refer to Chp V: IMNCI protocol for vitamin A dose) and give third dose two to four weeks after the second dose if ocular manifestation is present
- Ciprofloxacin eye drops one to two drops three to four times a day for conjunctivitis
- Paracetamol 500mg PO TDS for fever/pain
- Treat secondary pneumonia with antibiotics
- Give zinc and ORS for gastroenteritis.

ADVICE

Fluids, nutrition and antibiotics if secondary infection, close follow-up, immunisation

Vaccination: MR vaccine: at nine and 15 months.

COORDINATION AND NOTIFICATION: All suspected cases of Measles should be referred to Surveillance Medical Officer (SMO) or health institutions from where blood sample for measles is collected or Expanded Programme on Immunization (EPI) supervisor at PHD office.

REFERRAL

Refer to hospital for complications – corneal scarring, severe pneumonia, encephalitis, severe dehydration due to diarrhoea.

11.B. CHICKEN POX

Chicken pox is a viral infectious disease caused by Varicella Zoster Virus (VZV), common in childhood. The incubation period is two to three weeks. It is usually spread by droplets or discharge from skin lesions or contact.

DIAGNOSTIC FEATURES

- Fever
- Rash: The presence of different stages of the rash is the most typical sign: red spots develop into blisters that burst and crust over; lesions can be present all over the body (including face and scalp) and new lesions start developing every day for a few days
- Itching
- Loss of appetite
- Myalgia.

MANAGEMENT

Drug treatment:

- Paracetamol 500mg PO TDS for fever and pain (child: 10-15mg/kg BW TDS – see Chapter XIV, Section 2 (Dosage Charts))
- Cetirizine 10mg OD for itchy rash. (Child: calamine lotion topically)
- For secondary infection (pus formation and swelling/redness of skin or signs of pneumonia): Antibiotics (amoxicillin 500mg PO TDS for five days or Cotrimoxazole for five to seven days – see Chapter XIV, Section 2 (Dosage Charts)).

ADVICE

Isolate patient until every rash lesion is covered with dry crust.

Transmission from a pregnant woman to her child in the first six months of pregnancy can cause serious damage to the unborn child. Infection of the mother between five days before and two days after birth can be transmitted to the baby and cause very severe disease. This is why it is important to keep pregnant women away from children with chickenpox.

REFERRAL

- If complications are present – Infected blisters requiring surgery, severe pneumonia
- Any pregnant woman who develops chicken pox

11.C. RUBELLA

Rubella, also called German measles or three-day measles, is a contagious viral infection best known by its distinctive red rash. The incubation period is 12–23 days.

DIAGNOSTIC FEATURES

- Mild fever and headache
- Rash: Maculopapular that does not coalesce, milder than measles rash, begins on face and head and spreads downwards, usually lasts three days
- Sometimes inflamed, red eyes
- Lymphadenopathy
- Joint pain and swelling.

RUBELLA IN PREGNANCY:

The highest risk to the foetus is during the first trimester, but exposure later in pregnancy also is dangerous. Congenital Rubella Syndrome (CRS) presents as hearing loss, eye problems (cataract, glaucoma), heart disease (patent ductus arteriosus), developmental delay and microcephaly.

MANAGEMENT

Tab Paracetamol 500mg PO TDS for three days for pain/fever. (Child: 10–15mg/kg BW TDS – see Chapter XIV, Section 2 (Dosage Charts).

ADVICE

Reassure, nutrition and diet, plenty of fluids, encourage breastfeeding for children.

Prevention: MR vaccine: at nine and 15 months of age.

COORDINATION AND NOTIFICATION

Any case of fever with rash should be referred to SMO/PHCC/hospital for reporting purposes for WHO surveillance system.

REFERRAL

- Rubella infection in pregnancy
- If complications are present (encephalitis, purpura, features of CRS).

11.D. MUMPS

Mumps is a viral illness caused by paramyxovirus and is highly contagious, and spreads rapidly among people living in close contact. It is usually mild and self-limiting, but can rarely cause serious complications, such as meningitis, or in male older children and adults orchitis (leading to infertility)

DIAGNOSTIC FEATURES

- Sore throat
- Painful swelling over the angle of jaw, just below the ear, usually bilateral
- Pain when eating or drinking
- Low-grade fever.

MANAGEMENT**Drug Treatment:**

- Symptomatic – Paracetamol 500mg PO TDS for fever and pain.

ADVICE

- Reassurance (usually settles within seven to ten days)
- Plenty of fluids and soft diet, frequent mouth wash, bed rest.

Prevention: Measles, Mumps and Rubella (MMR) vaccine at 12–15 months and at three to five years (booster dose) – currently not part of Nepal’s EPI, but available in private health facilities.

REFERRAL

- If complications are present: Orchitis, oophoritis, pancreatitis, aseptic meningitis, hearing loss.

BHS doesn't cover this vaccine for adults

12. GENITOURINARY INFECTIONS

STIs are infections that are spread primarily from person-to-person by sexual contact with an infected person, by vaginal or anal intercourse and oral sex.

STIs can also be transmitted from one infected individual to another:

- Horizontal: From one infected person to another by sexual or other contact
- Vertical: From mother to child
- Others: From contaminated blood and other objects.

Common STIs:

- Bacterial: Syphilis, gonorrhoea, chlamydia etc.
- Viral: Genital warts, genital herpes etc.
- Protozoal: Trichomoniasis.

Endogenous sexual infections: Candidiasis (fungal yeast Infection) and bacterial vaginosis can also occur without sexual contact.

THE SYNDROMIC APPROACH to STI diagnosis and management is to treat the signs or symptoms (syndrome) of a group of diseases rather than treating a specific disease.

DIAGNOSTIC FEATURES**Signs and symptoms**

STIs may be asymptomatic or may present with significant symptoms. Clinical features of STIs may differ between males and females and may produce significant complications later.

STIs in Male:

- Urethral Discharge (UD)
- Burning and difficulty in micturition (dysuria)
- Painful sores, itching, vesicles, ulcers or fleshy growth in and around genitalia and perineum, anus/rectum, oral cavity and other sites
- Pain during intercourse
- Swollen and painful lymph glands in the groin and scrotal swelling.

STIs in Females

- Foul-smelling or otherwise unusual vaginal discharge (abnormal discharge)
- Burning and/or increased frequency of micturition
- Pain during intercourse
- Lower abdominal pain
- Painful sores, itch, vesicles, ulcers or fleshy growth in and around genitalia and perineum, anus/rectum, oral cavity and other sites.
- Swollen and painful lymph glands in the groin.

Both men and women who have an STI often have no symptoms.

MANAGEMENT

Syndromic management of STI: STI syndromes:

- UD syndrome
- Vaginal discharge syndrome
- Genital Ulcer Disease (GUD) syndrome
- Lower abdominal pain syndrome
- Scrotal swelling syndrome
- Inguinal bubo syndrome
- Neonatal conjunctivitis.

COUNSELLING – 4Cs

- Compliance with treatment is important – Need to complete full course of antibiotics
- Counselling/Client education – On partner reduction and other risk behaviours; counsel about STIs, HIV and hepatitis
- Contact tracing/partner treatment – All sexual partners need to be treated

Condoms – Encourage and promote condom use. Remind the couple to use condoms until treatment of both partners is completed to avoid re-infection.

12- A. URETHRAL DISCHARGE SYNDROME

UD syndrome is one of the most common presentations of STI in men. It is caused by *Neisseria gonorrhoea*, *Chlamydia trachomatis* and other less common organisms.

DIAGNOSTIC FEATURES**Symptoms and Signs**

- Discomfort or burning on passing urine, increased frequency of urine
- Obvious UD (thick to thin, clear to pus) or discharge within the preputial fold
- UD seen after urethral milking
- Erythema of the urethral meatus, the inner covering of the prepuce and/or glans penis
- May later develop painful scrotal swelling.

Diagnosis:

- Based on symptoms and signs (i.e. syndromic) and
- VDRL test.

BHS doesn't cover VDRL

MANAGEMENT**Treatment**

- Ceftriaxone 250mg IM single dose OR Cefixime 400mg oral single dose PLUS
- Azithromycin 1g oral single dose OR Doxycycline 100mg oral twice daily for 7 days PLUS
- Metronidazole 2g as a single dose PO

COUNSELLING

Emphasis on 4Cs

Recurrent UD

- Check for compliance with 4Cs
- Re-treatment for both gonococcal and chlamydial infection
- In some cases, there may be infection with *Trichomonas vaginalis*, or infection with *Mycoplasma genitalium*

Treat with:

- Tab metronidazole 400mg PO BD for seven days OR
- Tab tinidazole 500mg PO BD daily for five days

PLUS

- To treat for *M. genitalium* infection, use Tab azithromycin 500mg PO OD for six days.

REFERRAL

- If symptoms persist for over a week despite treatment
- Offer HIV testing
- STI in children.

12.B. SCROTAL SWELLING SYNDROME

Inflammation of testis (orchitis) and epididymis (epididymitis) or both (epididymo-orchitis) causes swelling and pain in testis and/or epididymis. It is caused by *Neisseria gonorrhoea* or *Chlamydia trachomatis* or other bacteria/viruses.

DIAGNOSTIC FEATURES**Symptoms**

- Usually, unilateral testicular swelling and pain
- May have dysuria/discharge and/or increased frequency of urine.

Signs

- Swelling and tenderness of testis and epididymis
- Occasionally UD.

Additional information needed:

- Similar symptoms in a sexual partner
- Past history of similar symptoms
- Treatment history.

Local examination:

- Expose genital areas
- Look for anorectal and urethral discharge; ask the patient to “milk” the penis and show discharge
- Examine scrotum for swelling and tenderness, rule out surgical causes
- Palpate groin for swelling.

Investigation

VDRL

BHS doesn't cover VDRL**MANAGEMENT****Treatment**

- Inj ceftriaxone 250mg IM – single dose (for gonococcal infection) OR Tab cefixime 400mg oral single dose

PLUS

- Tablet (Tab) azithromycin 1g – oral single dose OR Tab doxycycline 100mg 12-hourly for 10 days (for chlamydial infection).

If severe Penicillin allergy, (anaphylactic shock):

Omit ceftriaxone
Instead, increase dose of azithromycin to 2 gm

Supportive therapy: Bed rest, antipyretics and analgesics, and scrotal support until local inflammation and fever subside

COUNSELLING: 4Cs**REFERRAL**

- If symptoms persist for over a week, despite treatment
- Offer or refer (if no facility) for HIV counselling and testing
- Surgical causes like trauma, torsion – Testis elevated/rotated: urgent referral for surgical assessment
- Other infection (e.g., TB) should always be ruled out. Scrotal swelling can also be due to hydrocele/hernia/varicocele/cancer. Refer for surgical assessment.

12.C. VAGINAL DISCHARGE SYNDROME

Vaginal discharge is one of the most common complaints a woman presents with at any primary health care facility.

Normal vaginal discharge: A healthy woman may have a variable amount of clear and white discharge from her vagina. The discharge usually increases before and after menstruation, and becomes watery when a woman is in the middle of her menstrual cycle. It also increases during pregnancy, lactation, after sexual activity while taking oral contraceptive pills and when an IUCD is in place.

Abnormal vaginal discharge is caused by infection of the vagina or cervix; or other diseases such as cancers.

CAUSE**Vaginal infections:**

- Trichomonas vaginalis – Trichomoniasis
- Candida albicans – Candidiasis (not sexually transmitted)
- Gardnerella vaginalis – Bacterial vaginosis (not sexually transmitted).

Cervical infections:

- Neisseria gonorrhoea
- Chlamydia trachomatis
- Occasional Trichomonas and genital herpes type 2.

DIAGNOSTIC FEATURES

Symptoms

- Vaginal discharge:
 - Thick, curd-like with itching or burning – Candida
 - Thin profuse with vulval itching – Trichomoniasis
 - Thin yellowish, smelly discharge with few other symptoms – Bacterial vaginosis
- May have burning micturition
- May have pain during intercourse (more likely in cervicitis, but candida can cause superficial pain).

Signs

- Discharge from vaginal opening or cervical orifice
- It may be difficult to tell whether the discharge comes from the cervix or is coming from the vagina, i.e. whether it is a vaginitis or cervicitis.

Risk assessment for cervical infection

- Consider a woman at high risk of having a cervical infection (cervicitis) if:
 - Sexual partner is symptomatic with a STI
 - Woman had more than one sexual partner in the last month
 - Woman has a partner who has multiple partners.

When in doubt whether the patient has vaginitis or cervicitis, BOTH should be treated.

MANAGEMENT

Treatment of cervicitis

Inj ceftriaxone 250mg IM single dose (for gonococcal infection) OR cefixime 400mg PO PLUS

Azithromycin 1g single dose OR doxycycline 100mg BD for seven days (for chlamydial infection). (Caution: avoid doxycycline in pregnancy)

Treatment of vaginitis

Metronidazole 400mg oral BD for seven days OR tinidazole 2g oral single dose (for trichomoniasis or bacterial vaginosis)

PLUS

Fluconazole 150mg oral single dose (avoid in pregnancy) OR clotrimazole vaginal tablet 600mg single dose (for candidiasis).

COUNSELLING: 4Cs

REFERRAL

- If symptoms persist for over seven days despite treatment
- Offer HIV testing, especially if cervicitis is suspected or in case of recurrent infection – refer to a higher centre.

12.D. GENITAL ULCER SYNDROME

GUD syndrome is a common STI syndrome presenting with genital ulcers with or without inguinal lymphadenitis and can be caused by several organisms.

Causative organisms:

- Treponema pallidum (syphilis)
- Haemophilus ducreyi (granuloma inguinale)
- Herpes simplex virus
- Klebsiella granulomatis.

DIAGNOSTIC FEATURES**Symptoms:**

- Soreness or pain
- Ulcers – single or multiple in the genitalia
- Unilateral or bilateral inguinal lymphadenopathy.

Signs:

- Single or multiple, superficial or deep, clean or dirty ulcer at genitalia
- Unilateral or bilateral enlargement of local (to ulcer) lymph nodes
- Occasionally non-itchy maculopapular rashes on palms and soles and sometimes all over body.

MANAGEMENT

- Treat for syphilis, genital herpes and either chancroid or lymphogranuloma
- Aspirate fluctuant gland if required
- Offer syphilis serology and HIV testing
- Advice to keep ulcer clean and dry.

Drug treatment

Syphilis: Benzathine benzylpenicillin 2.4 million IU IM (single dose if history is of less than two years, 2.4 mill IU every week for three weeks, if history is of more than two years. Divide 2.4 million units into two equal doses (1.2 million each) and inject in both buttocks).

For penicillin-allergic man and non-pregnant woman: Doxycycline – 100mg BD for 14 days.

Chancroid/lymphogranuloma:

- Azithromycin 1g orally single dose OR
- Ciprofloxacin 500mg BD for three days OR
- Inj ceftriaxone 250mg IM single dose OR
- Erythromycin 500mg oral QDS for seven days.

COUNSELLING: 4Cs

Advise: Repeat VDRL in six months.

REFERRAL

- If genital ulcers suspicious of herpes are present (i.e. multiple small blisters or ulcers in the genital area which are very painful – often causing severe pain on urination which can lead to urinary retention): Refer to a higher centre for confirmation and treatment with acyclovir 400mg TDS for seven days
- If symptoms persist for over seven days despite treatment, offer HIV testing.

12.E. INGUINAL SWELLING (BUBO) SYNDROME

Inguinal bubo syndrome is characterised by painful swelling in the groin and caused by different groups of organisms causing STI (exclude hernia).

CAUSE

- Chlamydia trachomatis serovar L1–L3 (Lymphogranuloma venereum)
- Haemophilus ducreyi (chancroid).

DIAGNOSTIC FEATURES

Symptoms

- Pain/swelling in the inguinal region with or without ulcers in the genitalia.

Signs

- Unilateral/bilateral, tender/non-tender, single/multiple, solid/fluctuant lymph node swellings in the inguinal region
- Discharging sinus may be present
- Ulcer in the genitalia may be present.

Note: Infections of the lower limb and other non-STI causes can also cause swelling of the lymph nodes and these causes should be ruled out.

MANAGEMENT

Treatment

- Azithromycin 1g oral single dose; repeat after one week OR Inj ceftriaxone 250mg IM single dose OR ciprofloxacin 500mg oral BD for three days

PLUS

- Doxycycline 100mg oral, BD for 14 days.

COUNSELLING: 4Cs

REFERRAL

- Offer HIV testing
- If symptoms/signs are persistent, 14 days after starting treatment

12.F. LOWER ABDOMINAL PAIN SYNDROME IN WOMEN

Lower Abdominal Pain Syndrome is also called PID. It is an infection of the female upper genital tract (uterus, fallopian tubes, ovaries or pelvic cavities). It is a common complication of STI in women, which occurs as an ascending infection through the cervix.

CAUSE

- Neisseria gonorrhoea
- Chlamydia trachomatis
- Anaerobic bacteria, Gardnerella vaginalis, Haemophilus influenzae, enteric gram-negative rods, Mycoplasma hominis, Ureaplasma urealyticum etc. Others – unknown.

DIAGNOSTIC FEATURES

Symptoms:

- Lower abdominal pain
- Pain on intercourse/pain during urination
- Vaginal discharge
- Fever: low-/high-grade
- Dysmenorrhea/menorrhagia.

Signs:

- Lower abdominal tenderness, guarding, rebound tenderness
- Cervical discharge/bleeding
- Low-grade or high temperature (above 38.5°C).

Speculum examination

- Cervical erosion/ulcer
- Abnormal (mucopurulent) discharge from the cervix.

Bimanual pelvic examination

- Cervical excitation (pain on moving the cervix) may be present.

MANAGEMENT

Treatment

- Inj ceftriaxone, 250mg single dose IM, PLUS
- Doxycycline, 100mg orally, BD for 14 days, PLUS
- Metronidazole, 400mg orally BD for 14 days.

COUNSELLING: 4Cs

Follow-up:

Within three to seven days or sooner if condition does not improve.

REFERRAL

- If the diagnosis is uncertain
- If clients present in severe condition, nausea, vomiting, high fever >38°C
- Appendicitis or ectopic pregnancy or peritonitis or pelvic abscess is suspected
- The patient fails to respond to the treatment provided in outpatient basis.

13. URINARY TRACT INFECTION (UTI)

Significantly large numbers of microorganisms invade the urinary tract, especially in women.

- Lower UTI: Cystitis (bladder infection)
- Upper UTI: Pyelonephritis (kidney infection)

UTI may be found as asymptomatic bacteria, which does not need treatment in non-pregnant adults. Newly married women and children with a renal tract abnormality are at higher risk for UTI.

DIAGNOSTIC FEATURES

Symptoms:

- Burning and pain during micturition
- Increased frequency of micturition
- Low abdominal pain
- Fever, nausea, vomiting

Signs:

- Fever (sometimes with rigor)
- Low abdominal tenderness
- Flank tenderness (if pyelonephritis)

Differential diagnoses:

- Typhoid, malaria, PID, Kidney, Ureter and Bladder (KUB) stones, prostate disease, urethritis.
Rule out: DM, KUB stones, prostate disease, and pregnancy.

BHS doesn't cover Urine testing

Investigations:

- Urine R/E. (Normal urine has <5 pus cells. To avoid contamination, sample should be mid-stream, if possible. If leukocyte- or nitrite-positive, suspect UTI)
- Urine culture and sensitivity test, if R/E is positive, and patient can follow up.

MANAGEMENT

Drug treatment

- Cefixime 200mg BD, or Ciprofloxacin 500mg BD
Non-pregnant women: 5-7 days
Children, men or recurrent cases: 7-10 days

Pregnant Women:

- Amoxicillin 500mg TDS for seven days or
- Tab cefixime 200mg PO BD for seven days or
- Tab nitrofurantoin 100mg BD for seven days (NLEM; nitrofurantoin only for cystitis, i.e. afebrile patients).

ADVICE

Drink plenty of fluids and maintain perineal hygiene.

Follow-up: Pregnant women need repeat urine analysis within a month.

REFERRAL

- If not better after treatment, recurrent UTI, UTI with loin tenderness, especially in pregnant women, any child <5 years.

CHAPTER X

NON-COMMUNICABLE DISEASES (NCD)

Over 66% of deaths in Nepal are due to NCDs. Nepal now faces a “triple burden” of disease. While the country is still dealing with the problems of infectious diseases and malnutrition, in addition, there is an emerging epidemic of NCDs: COPD, HTN, DM and others. The BHS package aims to address NCDs through:

- Increasing awareness and adoption of healthy living habits by the community
- Early detection of persons with metabolic and behavioral risk factors and interventions for reducing risk
- Early detection of disease and management for prevention of complications.
- Referral to higher level for management of complications.

1. HYPERTENSION (HTN)

The force of circulating blood on the walls of the arteries is called Blood Pressure (BP). Measure BP in ≥ 2 occasions and consider ≥ 2 readings. Measuring BP is the only way to diagnose HTN, as most people with raised BP have no symptoms.

Classification

Classification	Blood Pressure range
Normal Blood pressure	$< 120/80$ mmHg
Pre-Hypertension	$(120-139)/(80-89)$ mmHg
Hypertension	
Stage 1	$(140-159)/(90-99)$ mmHg
Stage 2	$\geq 160/100$ mmHg
Hypertensive Urgency (Severe asymptomatic hypertension)	Hypertensive Emergency
SBP ≥ 180 mmHg	SBP ≥ 180 mmHg
DBP ≥ 120 mmHg	DBP ≥ 120 mmHg
No target organ damage	Target organ damage- life threatening

Note: Target organ damage- given in Signs and symptoms section.

Risk factors

- Essential hypertension- Advancing age, obesity, family history of hypertension, high sodium diet, excessive alcohol consumption, smoking, physical inactivity.
- Secondary hypertension: Drugs (OCPs, NSAIDs, Steroids, antidepressants, etc), CKD, Pheochromocytoma, Cushing's syndrome, etc.

Signs and symptoms:

- Mostly asymptomatic until target organ damage develops.
- Features of target organ damage:
 - Encephalopathy- altered mental status, vomiting, dizziness
 - Stroke- focal neurological deficits
 - Retinopathy- blurry vision

- Acute heart failure- shortness of breath
- Acute coronary syndrome- chest pain
- Aortic dissection- severe upper back pain
- Renal failure- hematuria, decreased urine output

Investigations:

- ECG, Urea and creatinine, Urine analysis, Lipid Profile.

Management:

- Treatment of hypertensive emergency: Maintain ABC, open IV access, Tab Amlod 10mg PO stat or tab Losartan 50mg PO stat and REFER.
- Asymptomatic, BP \geq 140-159/ 90-99 mmHg: Advise for diet, exercise, and start tab Amlodipine 5mg PO OD Or Tab Losartan 25mg PO OD and REFER for evaluation within 2-4 weeks.
- Asymptomatic, BP \geq 160/100 mmHg: Start tab Amlodipine 5mg PO OD or Tab Losartan 25mg PO OD and then REFER for evaluation within 1-2 weeks.

Advice/ Counselling:

- Reduce weight by reducing their food intake (smaller portion size, especially of carbohydrates such as rice)
- Exercise (until breathless and sweating) for 30 minutes or more, every day.
- Consume a diet rich in fruits, vegetables, whole grains and low-fat dairy products with reduced content of saturated fat.
- Reduce intake of dietary sodium to $<$ 5g/day (1 teaspoon=5gm).
- Reduce and stop alcohol and tobacco consumption.
- Increase diet rich in potassium.

Continuation of treatment:

- At each follow up visit- record BP, assess medicine compliance and side effects, continue same drug if BP is within control and REFER if BP is not controlled even with medicine.

Referral:

- Any case of high BP $>$ 180/120 mmHg.
- Hypertension with symptoms of target organ damage.

2. Diabetes Mellitus (DM)

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose due to either decreased or absence of insulin production or resistance to insulin leading to serious damage to the heart, blood vessels, eyes, kidneys and nerves.

Diagnosis:

- Fasting Glucose \geq 126mg/dl
- 2 hour post prandial glucose \geq 200mg/dl
- Random Blood Sugar (RBS) \geq 200mg/dl and classic symptoms of polydipsia, polyurea, polyphagia and weight loss. Note- RBS: 140-199mg/dl is Pre-diabetes.
- HBA1C \geq 6.5%

BHS doesn't cover blood sugar and HbA1C tests

Risk factors:

- Smoking, HTN, obesity, physical inactivity, family history of DM

Preliminary assessment:

- BP
- BMI and waist circumference
- Feet- look for skin change, ulcers, sensations, diminished pulse (Dorsalis pedis).
- Oral Cavity- Candidiasis.
- Eye- Retinopathy.
- Urine protein- Nephropathy
- Urine ketone if RBS >250mg/dl
- Serum Urea and creatinine

BHS doesn't cover lab tests and eye exam

Management:

- Advise for diet control, exercise and start Tab metformin 500mg PO OD for 1-2 weeks and then refer for evaluation.
- Start Tab Glimepride 1mg PO OD for 1-2 weeks for lean and thin diabetic patients and the refer for evaluation.

Advice/ counselling:

- Avoid bare foot walking
- Reduce weight by decreasing food intake and moderate intensity exercise.
- Give preferences to pulse, lentils, and oats over rice and roti.
- Those with poor mobility should perform physical activity to enhance balance and prevent falls.
- Brisk walking (until breathless and sweating) for at least 30 minutes daily for at least five days in a week.
- Avoid long gaps between meals (except overnight) and do not skip meals
- Eat vegetables and reduce fruits like mango and pineapple; eat raw vegetables and fruits as snacks.
- Limit sugar intake – avoid sweetened fruit juice/cola, ice cream, sweets, dessert
- Limit processed foods to avoid trans fats – biscuits, fried potato chips
- Counsel about symptoms of hypoglycaemia: dizziness, sweating, hunger, irritability, anxiety, confusion, headache, fatigue, loss of coordination, diplopia. Ask patient to take sugar or glucose orally if this happens.

Continuation of treatment:

- At each follow up visit (every 3-6 months for patients taking oral antihyperglycemics and every 4 weeks if taking Insulin), measure BP, fasting blood sugar level and Post prandial blood sugar level.
- Treatment Goal: fasting Blood Sugar <130mg/dl, Post Prandial Blood Sugar <180mg/dl, HBA1c<7%
- Refer if treatment goal is not achieved.
- Counsel for diet, exercise, life style modification in each visit.
- Continue same medicine if blood sugar is within treatment goal.
- Look for the compliance and side effects of the drugs.

Referral:

- Refer all newly diagnosed DM for further evaluation and management
- Raised BP >140/90 mmHg in diagnosed cases of diabetes.
- Any proteinuria
- Persistent glucose in urine in spite of drug treatment
- Complications of diabetes (Coma, persistent vomiting, diabetic foot, blurred vision, bodyswelling, neuropathy).
- Refer to physiotherapist, prosthesis and orthoptist for the management of diabetic foot and neuropathy.

3. ASTHMA AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Asthma and COPD are common long-term chronic conditions that are responsible for high morbidity and mortality.

Both conditions have a level of expiratory airway obstruction.

Asthma is a chronic inflammatory disorder of the airways characterised by obstruction of airflow, which may be completely or partially reversed with treatment.

COPD is characterised by airflow limitation that is not reversible and is usually progressive. COPD includes two conditions – chronic bronchitis and emphysema. COPD may be punctuated by periods of acute worsening of respiratory symptoms, called exacerbations.

3.A. ASTHMA

DIAGNOSTIC FEATURES

Differential diagnosis: TB, pneumonia, heart disease, anaemia, bronchiectasis, lung cancer.

See Chapter III, Sections 3 and 4 (Breathlessness/Shortness of Breath, Cough).

History, Signs/ symptoms	• Intermittent symptoms with asymptomatic period in between
	• Symptoms worse at night or early morning
	• Symptoms triggered by respiratory infection, exercise, weather change or stress
	• Symptoms respond to salbutamol
	• Previous diagnosis of asthma by physician
	• History of allergic hay fever, eczema and/or allergies
	• Family history of asthma

MANAGEMENT OF ASTHMA

Maintenance Therapy

**BHS does not cover
Beclomethazone**

Treatment	• First line: Salbutamol Metred-dose Inhaler (MDI) two puffs or rotahaler one cap as required (NLEM) OR
	• If salbutamol needed regularly, advise steroid MDI (beclomethasone) (NLEM)
	Review asthma control every three to six months and more frequently if asthma is not well controlled
	Severe exacerbation of asthma: Provide first aid before referring to a higher centre
	• Nebulize with Salbutamol, Ipratropium solution and NS at 1:1:2 ratio every 15 minutes 3 times.
	• Tab prednisolone – 40mg PO OD for 5 days
	• Oxygen (if available) – 2L/min
Refer	If any signs of infection (fever, yellow sputum):
	• Antibiotic – Cap amoxicillin 500mg TDS for 5-7 days OR Azithromycin 500mg PO stat and 250mg PO OD for 4 days.
	• Any exacerbation that needs OXYGEN or does not improve quickly with above treatment
	• (Where available nebulise at BHCCs before referring to a higher centre for nebulisation and oxygen)
	• When asthma remains poorly controlled or severe (SpO ₂) <88%
	• When the diagnosis of asthma is uncertain

COUNSELLING PATIENT AND FAMILIES:**Regarding prevention:**

Advice	• Avoid cigarette smoking and other trigger factors for asthma if known
	• Avoid dusty and smoke-filled rooms
	• Avoid occupations that involve agents capable of causing occupational asthma
	• Reduce dust as far as possible by using damp cloths to clean furniture, sprinkling the floor with water before sweeping, cleaning blades of fans regularly and minimising soft toys in sleeping areas
	• Eliminate insects from the house and shake and expose mattresses, blankets, etc. to sunlight when the patient is away
	• Come to health facility early if symptoms get worse/if needing more salbutamol than previously

3.B. CHRONIC OBSTRUCTIVE PULMONARY DISEASE CLASSIFICATION AND ASSESSMENT

Assess	Mild COPD – breathless more quickly with moderate exercise; more frequent chesty coughs; patient may not be aware of problem
	Moderate COPD – breathless with normal activity
	Severe COPD – breathless at rest (manage as exacerbation and immediate referral)
	Suspect COPD in patients presenting with chronic exertional breathlessness, productive cough, and wheezing history if s/he also has the following features:
	• Previous diagnosis of COPD by physician
	• History of heavy smoking, i.e., more than 20 cigarettes per day for more than 15 years, history of heavy and prolonged exposure to burning fossil fuels in an enclosed space or high exposure to dust in an occupational setting
	• Symptoms started in middle age or later (usually after age 40)
	• Symptoms worsened slowly (over >8 weeks) and are PROGRESSIVE
	• Long history of daily or frequent cough and sputum production often starting before shortness of breath
	• Symptoms that are persistent, with little day-to-day variation
	• Exercise intolerance
	• Absence of other conditions that may mimic COPD (e.g., asthma, CHF, bronchiectasis, TB, lung cancer etc.)
	During physical examination, look for the following:
	• Barrel-shaped chest, use of accessory muscle of respiration
	• On auscultation:
	- Diminished air movement
	- Prolonged expiration and wheezing
	• Cyanosis, swelling of legs/abdomen (if the disease is in advanced stage)
	Measure SpO ₂ (by pulse oximeter) to rule out hypoxemia
Investigations:	
• Rule out TB (patients with chronic cough must have x2 sputum tests for AFB)	
• CXR-PA view	

BHS doesn't cover Sputum testing and CXR view

Beclomethasone and Tiotropium inhaler are not covered by BHS

MANAGEMENT OF COPD:

Treat	<p>Maintenance therapy</p> <ul style="list-style-type: none"> • First line: salbutamol MDI two puffs (with spacer) or rotahaler one Cap as required (NLEM) OR • If salbutamol needed regularly (two to four times daily), advise steroid MDI (beclomethasone – NLEM) regularly BD or once-daily tiotropium – NLEM) • Regular steam inhalation if there is thick sputum
MANAGEMENT OF COPD EXACERBATION – Provide first aid prior to referral to a higher centre	
Treat	<ul style="list-style-type: none"> • Controlled oxygen by nasal prong or face mask (no more than 2L/min), target above 88%, and avoid high flow. <p>ALWAYS observe COPD patients on OXYGEN closely, as they can sometimes develop respiratory failure and become unconscious if they do not tolerate inhaled OXYGEN</p> <ul style="list-style-type: none"> • Nebulize with salbutamol solution, ipratropium solution and NS (1:1:2), repeat every 15 minutes 3 times. • Antibiotics: <ul style="list-style-type: none"> - Amoxicillin 500mg TDS for five days OR - Azithromycin 500mg on Day one, then 250mg OD for four more days • Oral prednisolone 40mg OD for 5 days or IV hydrocortisone 200mg IV stat and then 100mg IV TDS, if patient is not able to take orally.
COUNSELLING to patient and families	
Advice	<ul style="list-style-type: none"> • Stop smoking, avoid dust, tobacco smoke and smoke from cooking • If using wood or cow dung – only cook outside the house, if possible, or build/use upgraded oven; preferably cook with gas/electricity • Stop working in areas with occupational dust or high air pollution – using face mask may help • Light exercise, chest rehabilitation and breathing exercises

REFERRAL

- When diagnosis of asthma or COPD is uncertain
- Asthma/COPD with severe exacerbation needing OXYGEN, after first aid treatment
- When patient does not recover after initial treatment.

4. MUSCULOSKELETAL PAIN

Musculoskeletal Pain (MSP) is one of the commonest problems in the general Outpatient Department (OPD).

4. A. JOINT PAIN

Joint pain is a very common symptom. The common causes of joint pain are:

- Mechanical: Trauma-related – muscle spasm, fracture, dislocation, sprain; age-related – osteoarthritis
- Infectious: Osteomyelitis, septic arthritis, rheumatic fever
- Inflammatory: Gouty arthritis, rheumatoid arthritis.

DIAGNOSTIC FEATURES of common conditions:

- Rheumatoid arthritis: Symmetrical small joint, e.g., fingers, wrist, ankles (three or more), pain for more than six weeks, morning stiffness, SC nodules, swelling of small joint, deformity of hand. Stiffness worsens after joint resting
- Osteoarthritis: Age-related joint pain, most commonly knee joint is involved, asymmetrical pain, pain increases on aging, swollen joint, tenderness present, frequently associated with joint effusion, joint stiffness worsens after movement

- Gouty arthritis: Severe joint pain in small joints, first metatarsophalangeal (base of big toe) being the common one, swelling and tenderness present, common in alcoholic, obese patients and those who consume more red meat
- Frozen shoulder: Painful shoulder with restricted movement, common in diabetic patients, often following trauma or immobilisation
- Reactive arthritis: Presents as mono- or oligo-arthritis such as knee, asymmetrical in nature, there is a recent history of infection such as respiratory or enteric
- Septic arthritis: Severe joint pain associated with high-grade fever and joint movement restriction, normally only one joint, hip and knee joint commonly involved
- Rheumatic Fever: very painful, inflamed and swollen joint, which can be better within a day or two; then another joint becomes painful; typically, in young children/adolescents two to three weeks after throat infection; associated with pallor and fever and general malaise and sometimes other general symptoms.

MANAGEMENT

Drug treatment

- Pain management: Paracetamol/Ibuprofen as required.

Advice

- Gout: Avoid alcohol, avoid red meat in the diet; if frequent attacks, refer to assess for regular medication
- Osteoarthritis: Physiotherapy (muscle strengthening), BW reduction.
- Frozen shoulder: Physiotherapy (joint mobilisation); refer for injection into the joint at higher centre
- Reactive arthritis: Usually resolves in a few weeks
- Rheumatic arthritis, septic arthritis, rheumatic fever arthritis: Needs specialist treatment; refer
- Post-traumatic joint pain, such as ligament injuries: cold fomentation and rest for a few days followed by physiotherapy.

General: Hot fomentation for chronic pain and cold fomentation for acute/traumatic joint pain.

REFERRAL

- All suspected rheumatic arthritis – Refer for definitive diagnosis and long-term management
- All suspected septic arthritis and rheumatic fever – Refer urgently!
- General – Any pain associated with high-grade fever, severe trauma, joint deformity, limping due to joint pain in children
- If pain and swelling does not subside after five days of treatment.
- Refer to physiotherapist for assistive devices in osteoarthritis and for orthoses for frozen shoulder.

4.B. BACK PAIN

Back pain accounts for large number of cases in the general OPD of every health care unit. The commonest causes are: non-specific pain, like muscle spasm, degenerative changes in the spine; less common: trauma, disc prolapse; rare causes: tumours; infections like TB, osteomyelitis.

Other pathologies such as UTI, PID, renal stone, pancreatitis, duodenal ulcer, aortic aneurysm etc. can also cause back pain

DIAGNOSTIC FEATURES

- Back strain/muscle spasm: Usually sudden-onset, non-radiating type (or radiating only into buttock and posterior thigh), sometimes associated with minor injuries; tightening of paraspinal muscles, decreased range of motion of back, no pain at rest.
- Sciatica: Pain in lower back and same sided buttock, may radiate into back of thigh; Straight leg raise may be positive (painful); no muscle weakness, normal reflexes, pain usually relieved with exercise
- Disc prolapse: Lower back pain, radiating pain into the leg and foot, in severe cases motor deficits and urine, stool incontinence, reflexes and power on affected side may be reduced; positive straight leg raising test (reduced compared to other side). Pain may also persist at rest
- Compression fracture of vertebra: After fall/trauma (in elderly also without history of trauma), continuous pain worse when upright, tenderness on percussion of spine
- Pott's spine (TB): Chronic back pain, associated features of TB (low-grade fever, loss of appetite, weight loss, fatigue), swollen and tender affected spine or spine deformity
- Vertebral cancer: Dull aching type of continuous back pain, can be associated with low-grade fever, weight loss; usually tenderness at affected vertebra, neurological deficits might be present at later stage
- Aetiologies outside the spine: Flank pain radiating to groin, colicky type – nephrolithiasis; flank pain associated with fever and renal angle tenderness – pyelonephritis; lower abdominal pain and PV discharge – PID; epigastric pain with nausea and vomiting – pancreatitis/duodenal ulcer; pulsatile abdominal mass – aortic aneurysm.

MANAGEMENT

Drug treatment – for simple back pain (muscle spasm/strain) and sciatica:

- Tab ibuprofen 400mg PO TDS for three to five days, treatment of specific cause. In very severe pain associated with muscle spasm, diazepam 5mg tablets may help – no more than two to three times daily for two to three days. Ibuprofen and other NSAIDS should not be continued indefinitely (see Chapter I, Section 2).

Advice for simple back pain

- Back care exercise, maintain appropriate balance between activity and rest.

REFERRAL

- If caused by trauma (e.g. fall)
- If associated with fever or weight loss
- If associated with spine deformity
- If weakness or unable to move lower limb/loss of sensation of the limbs or change in bowel and bladder habit.
- If elderly with history of other associated comorbidities (e.g. cancer)
- If not improved with above analgesics.
- Refer to physiotherapist for exercise and orthoses management.

5. ACID PEPTIC DISEASE

Acid Peptic Disease (APD) involves inflammatory or ulcerative lesions of the oesophagus, stomach and duodenum. This is due to either excessive acid secretion or diminished mucosal defence.

CAUSES/ exacerbating factors: H. pylori infections, gastroesophageal reflux, NSAIDs, steroid use, smoking, alcohol, coffee/tea, excessive use of spices (chilli), long periods of fasting, stress.

DIAGNOSTIC FEATURES

- Epigastric or retrosternal burning pain, pain worsens with eating (gastric ulcer) or pain relieved with food (duodenal ulcer)
- Pain may be located or radiating into back
- Postprandial belching
- Epigastric fullness
- Nausea and sometimes vomiting
- Loss of appetite
- May have acid reflux, sometimes night cough.

Danger signs: Sudden onset of severe epigastric pain, recurrent vomiting, palpable abdominal mass, anaemia, hematemesis (vomiting blood), melena (black stool), weight loss, jaundice, dysphagia (difficulty swallowing); age more than 55 years (could be gastric cancer).

Note: Always consider MI in a patient more than 45 years of age with sudden-onset epigastric pain.

MANAGEMENT

Drug treatment

- Antacid: One to two Tab aluminium hydroxide 250mg OR magnesium trisilicate 500mg to be chewed one to three hours after meals for three weeks, or any time during attacks of pain.

Depending upon the severity of the problem:

- Tab ranitidine 150mg BD before food at least for four to six weeks OR
- Cap omeprazole 20mg OD/BD for four to six weeks (as per NLEM)

Advice:

- Diet: avoid spices, alcohol, tobacco, and carbonated drinks. Encourage regular meals, avoid NSAIDS
- Reassure the patient: anxiety may be a causative factor.

REFERRAL

- Not responding to Ranitidine or Omeprazole for 4-6 weeks, refer for Pylori testing and Upper GI endoscopy).

Omeprazole is not covered in BHS

6. DISABILITY

Disability is an umbrella term for impairments, activity limitations or participation restrictions that result from the interaction between the person with a health condition and environmental factors.

CLASSIFICATION OF DISABILITY BASED ON SERIOUSNESS OF WEAKNESS

- a. Complete disability (Red): Total disability is a condition where there is difficulty in carrying out daily activities even with the continuous assistance of others.
- b. Severe disability (Blue): The condition of having to continuously take other people's assistance in order to carry out individual daily activities and to take part in social activities is acute disability.
- c. Moderate disability (Yellow): The condition of being able to perform daily activities by self with or without taking others' support, if the physical facilities are available, the barriers in the physical environment are removed and there are opportunities of training and education, is called Moderate disability.
- d. Mild disability (White): The situation where taking part in regular daily activities and social activities by self is possible if there is no social and environmental obstacle is mild disability.

MANAGEMENT AND COUNSELING FOR SPECIFIC CHILDHOOD DISABILITY:

	Specific impairment	Management
1.	Cleft lip and cleft palate	Corrected by surgery, the best age being four to six months for cleft lip and 18 months for cleft palate. REFER.
2.	Spina bifida	Refer to physiotherapist for rehabilitation and for mobility assistive device management to orthotist and prosthetist.
3.	Club foot	Correction of club foot can begin within 1-2 weeks of birth. Refer to prosthesis and orthotist for mobility assistive devices management.
4.	Brachial plexus injury at birth	Refer for mobility assistive devices to prosthesis and orthotist and refer to physiotherapist for limb exercise.
5.	Congenital limb deficiencies	Refer to physiotherapist for limb exercises and for mobility assistive device management to orthotists and prosthetist.
6.	Cerebral palsy	Early detection and referral to a physiotherapist. Prosthesis and orthotist for mobility assisted devices.
7.	Down's syndrome	Refer to a physiotherapist for rehabilitation and speech therapist and behavioural therapist for speech and behaviour therapies.
8.	Congenital torticollis	Refer to physiotherapist for rehabilitation – stretching exercises, correct positioning of the neck.
9.	Hydrocephalus	Refer to tertiary centre for surgery.
10.	Autism	Refer to a Paediatrician for rehabilitation – may include behavioural, speech, occupational and physical therapies
11.	Burn contractures	Refer to physiotherapist for rehabilitation. Prosthetist and Orthotist for mobility assistive devices management.

COUNSELLING WOMEN AND FAMILIES to prevent birth defects, disabilities and impairment:

Interventions for reducing birth defects and impairments	Pre-conception treatment to prevent birth defects
Improved diet of women throughout their reproductive years, with adequate dietary intake of vitamins and minerals	Tab folic acid 5mg OD pre-conception and in first trimester of pregnancy
Use of iodised salt to prevent hypothyroidism	Counselling to use iodised salt
Ensuring mothers abstain from alcohol	Counselling on avoiding alcohol
Controlling DM before planning a pregnancy and keeping DM well controlled during pregnancy.	Refer diabetic women who are planning a pregnancy to a higher centre for control of DM and good control throughout pregnancy

REFERRAL

- All children with suspected disabilities must be referred
- For surgery and specialist services related to disability.

7. MENTAL HEALTH DISORDERS: COMMON NEUROTIC AND PSYCHOTIC DISORDERS AND IDIOPATHIC EPILEPSY**7.A. DEPRESSION**

Depression is one of the commonest health conditions, yet is often underdiagnosed. Depression may be present in up to 10% of OPD patients.

Depression core symptoms:	Other features of depression:
<ul style="list-style-type: none"> • Persistent depressed mood for more than two weeks • Loss of interest for more than two weeks • Easy fatigue or decreased energy 	<ul style="list-style-type: none"> • Reduced concentration and attention • Reduced self-esteem and self-confidence • Ideas of guilt • Pessimistic view of the future • Ideas of self-harm or suicide • Disturbed sleep • Diminished appetite • Multiple physical complaints with no clear cause

DIAGNOSTIC FEATURES

At least two of the core symptoms and at least three of other features of depression if present for most of the days for at least two weeks resulting in considerable difficulties in daily functioning.

Before diagnosing depression, always rule out:

- Previous history of mania (symptoms: elevation of mood and/or irritability, decreased need for sleep, increased activity, feeling of increased energy, increased talkativeness or rapid speech, impulsive or reckless behaviours such as excessive spending, making important decisions without planning, loss of normal social inhibitions resulting in inappropriate behaviours, sexual indiscretion, being easily distracted and unrealistically inflated self-esteem)
- Recent death of loved ones or major loss
- Physical conditions such as anaemia, malnutrition, DM, hypothyroidism
- Substance use.

Always assess for suicide risk: Assess if person has attempted suicide; ask if patients have current thoughts/plans of self-harm/suicide.

MANAGEMENT

Psychosocial counselling of patient and family:

- Education about the disease, continue activities that used to be interesting, maintain a regular sleep pattern and avoid substance use, regular physical activity and regular social activities are very beneficial.
- The risk of suicide is high in depression; close observation of patient's body language and behaviour is necessary. When a patient talks about death or suicide, take it seriously, keep him/her under 24-hour vigilance and consult the treating health professional immediately.

DRUG TREATMENT:

Drug of choice: Fluoxetine

- Dose: Start with 10mg am OD for one week then 20mg daily for upto 6 weeks. Refer if not improving on this dose.
- Side effects: Headache, dizziness, GI disturbances, insomnia.

Follow-up: First follow-up after one week, then every month for three months and once in three months for the rest.

- **Improving:** Medication should be given for 9 months after the symptom improve significantly.
- **Not improving:** Ensure adherence to treatment; optimise the dose, check side effects, check for emergence of mania.

How to stop drugs: Medication should be given for 9 more months after the symptoms improve significantly. Decrease the dose by 10 mg every 4 weeks and stop the medication. If symptoms restart, refer.

REFERRAL

- Patient not improving with above treatment
- Bipolar depression (episodes of mania alternating with depression)
- Depression in children, pregnancy and postpartum depression
- Depression with psychosis
- Depression with substance abuse
- Depression with suicidal tendency/attempt.

7.B. ANXIETY DISORDER

Anxiety disorder is one of the most common mental disorders with which patients present to a primary health care set-up.

DIAGNOSTIC FEATURES

- Generalized and persistent anxiety (i.e., anxiety occurring everywhere "free floating")
- Apprehension (worries about future misfortunes, feeling "on edge", difficulty in concentrating, etc.)
- Motor tension (restless fidgeting, tension headaches, trembling, inability to relax)
- Autonomic overactivity (lightheadedness, sweating, tachycardia or tachypnoea, epigastric discomfort, dizziness, dry mouth, etc.).
- May be accompanied by irritability, disturbed sleep, increased emotional sensitivity etc.

To diagnose a case of anxiety disorder

- Most of the symptoms listed above should be present on most days for at least several weeks at a time, and usually for several months (at least six months) affecting daily activity and behaviour.
- Diagnosis of Generalized Anxiety Disorder (GAD): Excessive anxiety and worry about number of events or activities, difficult to control worry and 3 or more of the following symptoms- (restlessness, easy fatiguability, difficulty concentrating, irritability, muscle tension, sleep disturbance).

MANAGEMENT**Psychosocial management**

- Psychosocial management is the first line of management and medications should be started only when psychosocial management alone fails
- Even when medication is started, psychosocial support needs to be provided to the patient
- Physical exercise, relaxation techniques, meditation, yoga, deep breathing, stress management.

Drug treatment

- Start Cap. Fluoxetine 10mg PO OD. If there are no signs of improvement even after 6 weeks, dose can be increased to 20 mg/day. If still not improved with 20 mg/day after 6 weeks, referral may be needed.
- Diazepam 5–10mg at night time if sleep is impaired and refer if it does not get better with counselling. NOTE: Diazepam can be very addictive – DO NOT use for more than a week!

REFERRAL

- Anxiety associated with other mental illness
- Anxiety associated with suicide attempt or intention of suicide
- Not responding to treatment.

7.C. EPILEPSY

Epilepsy is a chronic condition, characterised by recurrent attacks of unprovoked seizures. Epilepsy is one of the most common neurological disorders of the brain.

Common types of seizures are: (a) simple partial seizure (b) complex partial seizure and (c) tonic clonic seizure. Generalised Tonic Clonic Seizure (GTCS) is the most common type of seizure.

AN ACUTE GENERALISED SEIZURE IS AN EMERGENCY! – See Chapter II, Section 4 (Convulsions).

DIAGNOSTIC FEATURES

- May have: History of trauma, neuro-infection, substance abuse, alcoholism, DM (hypoglycaemia), past history of epilepsy
- Convulsions in a pregnant woman in second trimester up to first week post-partum – suspect eclampsia
- Convulsions in a child – aged six months to six years, with fever – Likely complex febrile seizure – Refer.

Common presentation**During the convulsion:**

- Loss of consciousness or impaired consciousness
- Up-rolling of eyes, frothing from mouth
- Generalised abnormal body movement (tonic clonic)
- Stiffness, rigidity
- Tongue bite, injury, incontinence of urine or faeces.

After the convulsion:

- Fatigue, drowsiness, sleepiness, confusion, abnormal behaviour, headache, muscle aches, or weakness on one side of the body
- Post-ictal headache and vomiting.

Diagnosis: To diagnose an epilepsy: there should be at least 2 episodes of unprovoked seizures. Fever, meningeal signs, head trauma, metabolic abnormality and substance use or withdrawal should have been evaluated and ruled out

MANAGEMENT - DURING SEIZURE

- Check airway, breathing and circulation if the patient is unconscious
- Protect the person from injury by moving them away from fires and other dangers
- Keep them in lateral position; protect airway
- Avoid restraint and insertion of mouth gag
- Diazepam should only be given if fits keep coming back every few minutes or do not stop within five minutes, i.e., status epilepticus.

FOR ACUTE ATTACK NOT STOPPING WITHIN 5 MINUTES OR RECURRING (STATUS EPILEPTICUS)

- Give IV diazepam 5–10mg slowly for adults, 0.2-0.5mg/kg slowly in children.
- If IV injection is not possible, give rectal diazepam (same dose as IV, given rectally through syringe without needle). Do not give IM diazepam
- In neonates and young children, or those with a history of DM or alcoholism, check random sugar and manage hypoglycaemia if present.

IF CONVULSION DOES NOT STOP AFTER DIAZEPAM IV/RECTAL, REFER URGENTLY.**Long-term Drug Treatment**

- The vast majority of seizures can be controlled by antiepileptic drugs. Commonly used drugs are carbamazepine, phenobarbital and valproic acid
- A single episode of seizure should not be treated with drugs
- Pregnancy with history of epilepsy – Refer to higher centre for treatment.
- If seizure is due to withdrawal of alcohol, give:
 - Tab Thiamine 100mg OD
 - And manage withdrawal. Long-term antiepileptic drugs are not required.

Thimine is not covered in BHS

Drug	Oral dosing	Side effects
Carbamazepine (First line)	<p>Adults: 100–200mg daily in two to three divided doses; increase by 200mg each week (max 1,400mg daily)</p> <p>Children: Start 5mg/kg BW daily in two to three divided doses; increase by 5mg/kg BW daily each week (max 40mg/kg BW/day)</p>	<p>Common: Sedation, confusion, ataxia, double vision, diarrhoea</p> <p>Serious: Hepatotoxicity, rash</p> <p>Always inform the patient about serious side effects of the drug and ask them to come to health facility immediately.</p>
Valproic acid (Second line)	<p>Adults: Start 400mg daily in two divided doses; increase by 500mg each week (max 3,000mg)</p> <p>Children: Start 15–20mg/kg BW daily in two to three divided doses; increase each week by 15mg/kg BW daily (15–40mg/kg BW)</p>	<p>Common: Sedation, headache, tremor, weight gain, hair loss</p> <p>Serious: Confusion, liver failure, leukopenia</p> <p>NOTE: High risk of foetal malformations if given in pregnancy</p>

Advice to patient and relatives

- Epilepsy is a neurologic illness and is not contagious.
- Patients can have a normal life with good adherence to treatment
- People with epilepsy should avoid situations where life might be at risk if they have fits, e.g., cooking on open fires, driving, working with or near heavy machinery, climbing a tree or sitting/working at heights, swimming
- During fits, keep the patient safe from injury. Do not try to push anything into patient's mouth, such as inserting a spoon. This can injure the patient
- Antiepileptic drugs must be taken regularly without missing a single dose. Discontinuation of the drug will precipitate fits
- Treatment should be continued at least for two years and some patients may need lifelong medication. Refer to hospital for action plan
- Drinking alcohol can precipitate seizures and so should be avoided
- Sleep deprivation can precipitate fits and so patients should maintain good sleep hygiene.

REFERRAL

Refer as emergency

- Continued seizures (status epilepticus) after diazepam
- Refer convulsions in pregnancy – after giving magnesium sulphate (see Chapter VII, Section 6)
- Refer convulsions in children suspected of febrile seizure.

Planned referral

- All people with seizures should be assessed at least once by a medically qualified physician
- If the first seizure is after the age of 30, referral is a must without delay
- Main reason of referral is to confirm diagnosis and to make sure the person is not suffering from any serious disease-causing seizures.

7.D. PSYCHOSIS

Psychosis is a severe mental disorder that is characterised by distortion of thinking and false perceptions. Patients can also have an inappropriate or narrow range of emotion. There is a loss of touch with reality.

DIAGNOSTIC FEATURES- At least 2 or more features of the following:

- Delusions (false unshakable beliefs): e.g., belief that people are trying to harm him/her, belief that the spouse is unfaithful to them, belief that people are spying on them etc.
- Hallucinations (perceptions in the absence of external stimuli): e.g., hearing voices when no-one is speaking, seeing things when nothing is actually present
- Irrelevant speech (disorganised speech): Speech that is out of context or lacks meaningful content or is not understandable
- Disorganised behaviour: Behaviour that is difficult to understand, lacks any goal/direction
- Gross neglect/impairment of usual responsibilities related to work, school, domestic or social activities.

MANAGEMENT

Psychosocial management

- Reassure patient and family that suffering and problems can be reduced with treatment
- Regular medication, timely follow-up and healthy lifestyle (balanced diet, personal hygiene, regular sleep, physical activity and avoiding alcohol/tobacco or other substances) are important
- Continue regular social, educational and occupational activities as far as possible
- Do not argue with psychotic thinking of the patient. Do not make critical comments
- Avoid confrontation, consider safety. Do not try to convince a patient that he/she is abnormal or sick.

Drug treatment:

Risperidone: Start with Tab Risperidone 1mg PO HS, increase to 1mg PO BD after 2 days. Evaluate the improvement after 4 weeks. If symptoms have started improving, continue the same dose. If symptoms are not improved, REFER.

Caution in cardiac patients. Side effects are sedation, dizziness, orthostatic hypotension, weight gain, Extrapyramidal Symptoms (EPS) (dystonia – abnormal movements and spasms of muscles; tremors; akathisia – involuntary fidgeting/moving)

Treatment duration: If it is the first episode of psychosis: Continue treatment with regular follow-ups for at least 1-2 years after the resolution of symptoms.

For agitation: Diazepam 10mg can be given initially for up to two weeks if there is agitation due to alcohol/substance abuse

Management of EPS: Add Tablet Trihexyphenidyl 2mg TDS immediately. Continue for 6 weeks. After 6 weeks decrease the dose to BD for 1 week, then stop.

Trihexyphenidyl is not covered in BHS

REFERRAL

- All psychosis cases to hospital for establishing a diagnosis and starting treatment
- Follow-up later at the HP.

7.E. SUBSTANCE USE DISORDER

Disorders due to substance use include acute intoxication, overdose, withdrawal, harmful use and dependence. Substances frequently abused are: alcohol, tobacco, narcotics (morphine, opium, codeine, heroin, tramadol), depressants (benzodiazepines) and cannabis derivatives (hashish, ganja, bhang, marijuana). Alcohol and tobacco are the substances most commonly abused and are discussed separately below.

- **ACUTE INTOXICATION** is a transient condition following intake of a psychoactive substance resulting in disturbances of consciousness, cognition, perception, affect, or behaviour
- **OVERDOSE** is the use of any drug in such an amount that acute adverse physical or mental effects are produced
- **WITHDRAWAL** is the experience of a set of unpleasant symptoms following the abrupt cessation or reduction in dose of a psychoactive substance. Withdrawal symptoms are, essentially, the opposite of those that are produced by the psychoactive substance itself
- **HARMFUL USE** is a pattern of psychoactive substance use that damages health. This damage may be physical, e.g., liver disease, or mental, e.g., episodes of depressive disorder
- **DEPENDENCE** is a cluster of physiological, behavioural and cognitive phenomena in which the use of a psychoactive substance takes on a much higher priority for a given individual than other behaviours that once had greater value.

DIAGNOSTIC FEATURES

Causative factors: To manipulate emotions; cope with stress, guilt, pain; initially sometimes only curiosity to try something new.

Examination:

- Psychological symptoms: Depression, anxiety, post-traumatic stress disorder, eating disorders, psychosis, anxiety
- Evaluation for suicidal tendency
- Mental status examination: General appearance, behaviour, speech, voice, mood and affect, judgement, insight, cognitive function, thought process, thought content
- General medical: Hygiene, weight loss/gain, scars in skin, signs of inhalation, evidence of intoxication (slurred speech, unsteady gait, pin-point pupils, atypical behaviour, sweating, runny nose)
- Systemic exam: BP, signs of STI, anaemia, pulmonary, signs of liver disease, Central Nervous System (CNS) and cardiovascular problems.

MANAGEMENT

Advice/counselling

- Establishing rapport: Respond with caring, eye contact, a calm presence and listen to them
- Allow expression of emotions
- Provide information regarding drug use, complications and effects in interactive manner
- Educate and energise people on the targeted issue
- Counsel to quit substance (and advise how!) and motivate to adopt a healthier lifestyle
- Counsel regular exercise and encourage to take up a healthy diet
- Use technique to build rapport: see Chapter XIII (Motivational Interviewing).

NOTE: Opioid and alcohol intoxication can sometimes be fatal. So initiate supportive treatment and refer.

REFERRAL

- If complications of the substance present, features of acute intoxication present, withdrawal features present
- For additional help with quitting, i.e., in alcohol or opiate dependency.

7.E.1. ALCOHOL USE DISORDER

Alcohol use disorder is fairly common in our society. Though it is a major public health concern, alcohol use disorder is still taken as a moral flaw rather than a disease condition, because of which many people who could be treated even from a primary health care set-up are being deprived of basic care. Different forms of alcoholic drinks are available in our society: RAKSI, AAILA, JAAND, CHHYANG, TONGBA, BEER, WINE, NIGAR etc.

DIAGNOSTIC FEATURES of alcohol dependence

1. Craving: A strong compulsion to take alcohol
2. Loss of control: drinking longer and more than intended
3. Development of tolerance (increased amount of alcohol is required to achieve effects previously produced by lesser amount)
4. Withdrawal symptoms when alcohol use has ceased or reduced
 - Tremor
 - Headache
 - Nausea and vomiting
 - Sweating
 - Palpitation
 - Seizure
 - Disorientation
 - Hallucination
5. Continued use of alcohol despite harm: liver damage, mental illness, etc.
6. Progressive neglect of alternate activities or interests due to alcohol use

To diagnose alcohol dependence: If a person taking alcohol has 3 or more features from the criteria listed above for at least 1 month within previous year, it can be diagnosed as alcohol dependence.

Physical examination: Physical features range from normal physical exam to:

- Alcohol withdrawal – tremor, agitation, high BP, clouding of the sensorium
- Advanced liver disease – jaundice; hepatic or splenic enlargement
- Acute intoxication – smell of alcohol on the breath, slurred speech, disinhibited behaviour, low level of consciousness.

MANAGEMENT**Psychosocial management:**

- While talking to the patient:
 - Provide counselling that alcohol use is causing harm to health
 - Explore person's reason for substance abuse and motivation to quit. Conduct motivational interviewing (see Chapter XIII)
- Follow up.

Primary management for alcohol use disorder:**Includes identifying withdrawal, intoxication, basic treatment of withdrawal and counselling.**

- If a patient presents with features of alcohol withdrawal:
 - Tab diazepam 10mg TDS. The dose can be increased if withdrawal symptoms persist. Maintain same dose for two to three days and gradually reduce dose by 5mg every day
 - Tab Thiamine 100mg OD or BD for 3-6 months
 - It is useful to prescribe vitamin B complex for a month (NEML)
- If patients present with alcohol withdrawal seizure:
 - Inj diazepam 10mg IV (or give rectally, if IV not possible) every 15–30 minutes until the seizures stop then change to oral diazepam as above if patient improves. (See Chapter II, Common Emergency Conditions Section 4 Convulsions.)

Always monitor RR, when giving Inj diazepam: rarely, a patient may stop breathing and need respiratory support until effects wear off.

Thimine is not covered in BHS

Advice/counselling

- Stopping alcohol is especially important when other risk factors are present:
 - Driving or operating machinery
 - Pregnant or breastfeeding mothers
 - Taking medication that interacts or is contraindicated with alcohol
 - Having medical conditions worsened by alcohol
- Suddenly stopping or decreasing the amount of alcohol intake can cause withdrawal symptoms, so it is better to consult health workers while stopping alcohol intake
- Advice to avoid situations and places in which the person starts taking alcohol
- It is a relapsing and remitting condition. Frequent follow-up and support from family members are essential in the treatment process
- Involvement in community and social activity should be encouraged.

REFERRAL

- In acute intoxication or withdrawal, if the patient does not improve, refer immediately (there could be additional diseases)
- For acute intoxication or alcohol withdrawal syndrome involving delirium, persistent withdrawal seizure, associated with other mental health issues
- Alcohol encephalopathy
- Severe liver disease
- Patients needing additional support to quit.

MOTIVATIONAL INTERVIEWING

This means gaining an understanding of the person and their circumstances so that the counsellor can adapt the communication approach to the person's current behaviour. The following principles can be used to guide the overall approach:

1. Do not tell the person what to do.
2. Listen and show empathy
3. Help the patient/client see the gap between where they are and where they want to be
4. Let the patient/client tell you that they need to change
5. Help the patient/client to feel confident about changing
6. "Roll with resistance": This means acknowledging the resistance and adjusting to it – for example, by expressing understanding of the patient's/client's point of view, acknowledging personal choice and control, and redirecting the conversation. Instead of getting into an argument with the patient, acknowledge that it is their life and their decision, but explain you are there to help.

Key communication techniques to use in motivational interviewing:

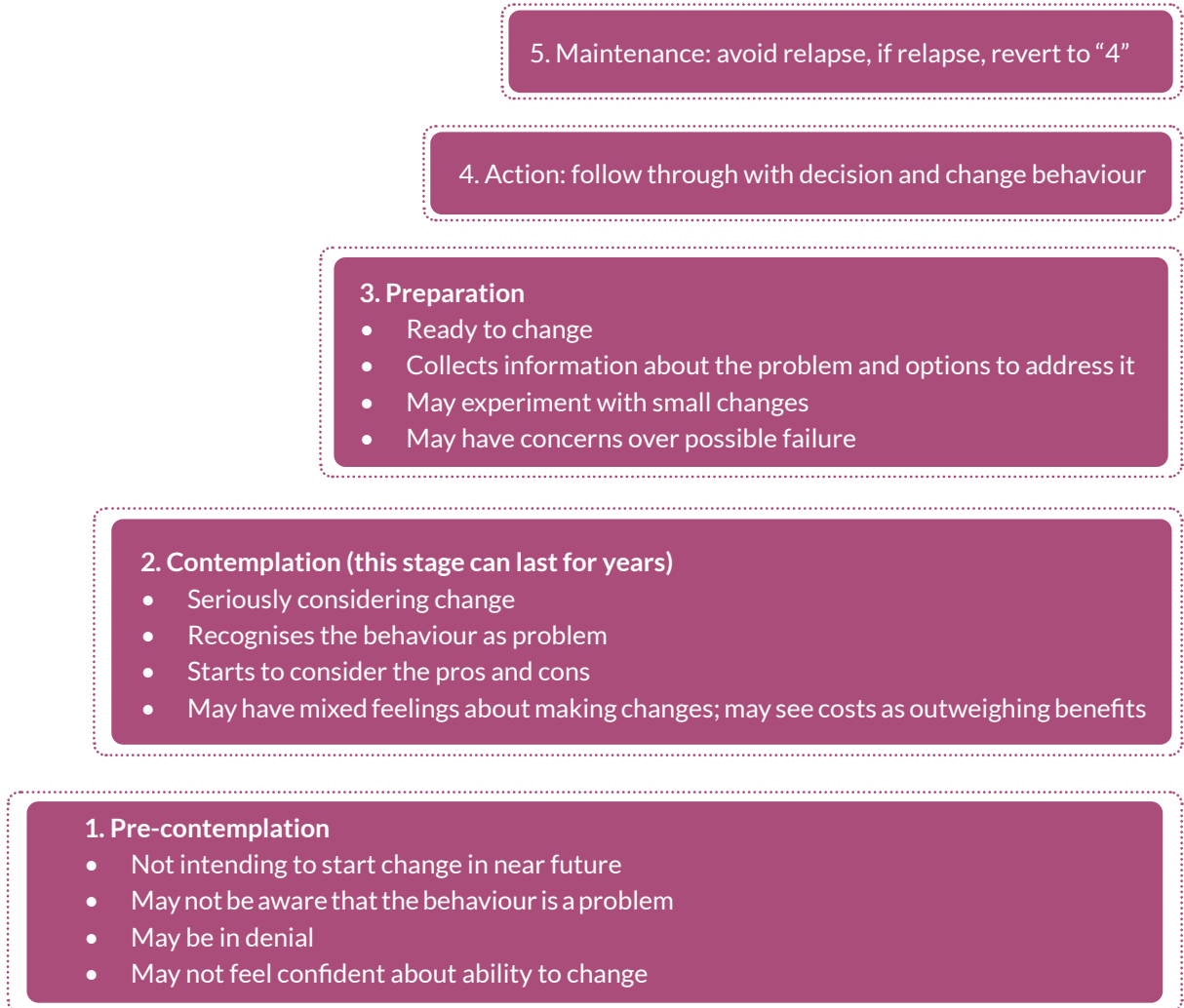
Using four basic techniques, health workers can counsel the patient:

- Open-ended questions: Open-ended questions cannot be answered easily in "Yes" or "No" format, but make the patient think and provide in-depth information to the counsellor. For example, ask, 'What are the effects of smoking on your health?' rather than asking, 'Do you think that smoking affects your health?'
- Affirm: Help the patient/client to recognise their strengths and have a more positive view of themselves
- Reflective listening: Show that you have heard and understood the patient/client by reflecting on what they have said
- Summarise: At intervals, summarise what has been covered up to that point during the counselling session. This confirms mutual understanding and can create momentum and motivation to change.

Tools to encourage behaviour change and self-care in motivational interview: 5As and 5Rs:

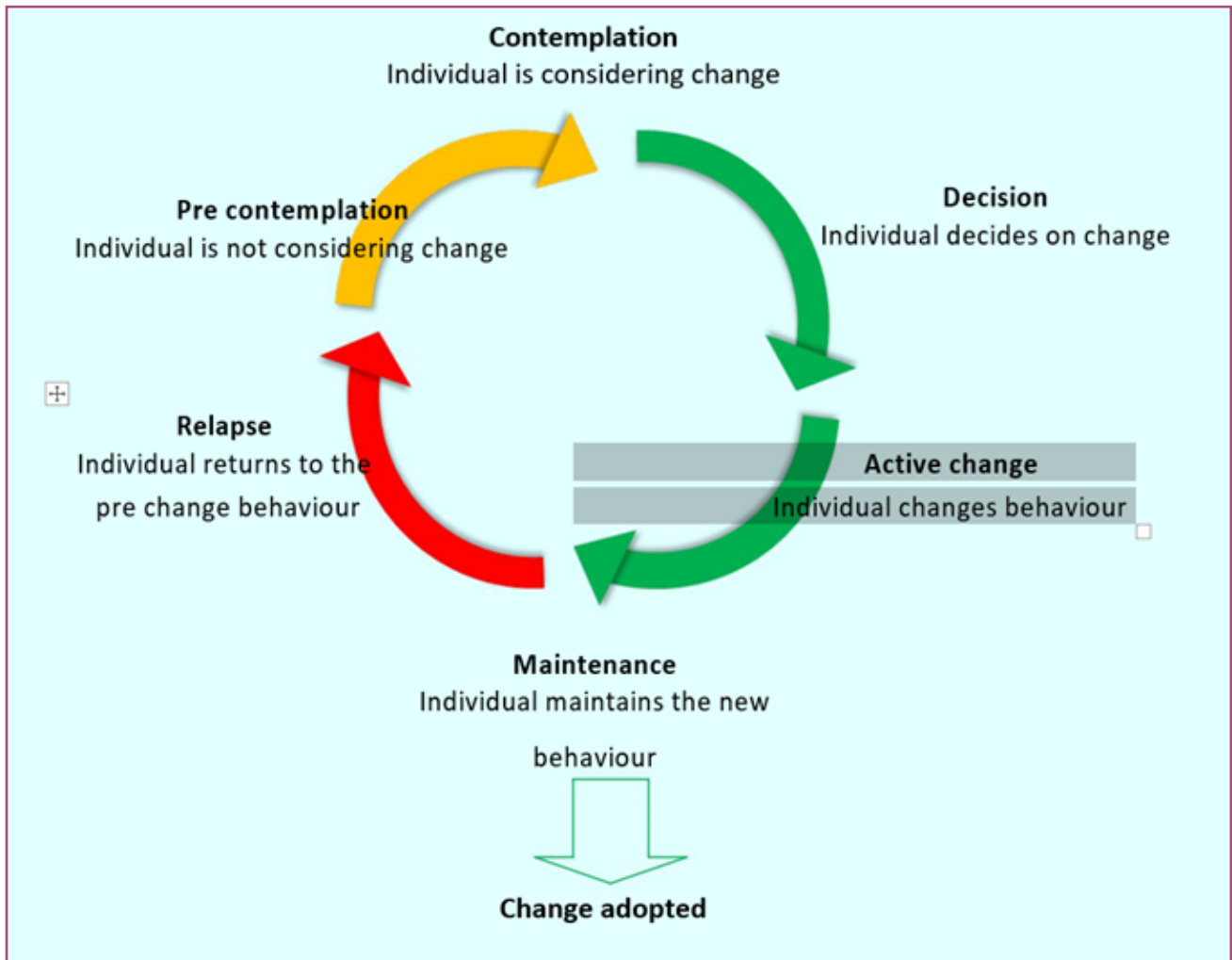
- **5As:**
 - Ask: Systematically identify all substance users at every visit
 - Advise: Advise all substance users that they need to quit
 - Assess: Determine readiness to make an attempt to quit
 - Assist: Assist the patient with a devising a plan to quit or provide information on specialist support
 - Arrange: Schedule follow-up contacts or a referral to specialist support.
- **5Rs:**
 - Relevance: How is quitting most personally relevant to you?
 - Risk: What do you know about the risk of smoking?
 - Rewards: What would be the benefits of quitting for you?
 - "Roadblock" (barrier): What would be difficult about quitting for you?
 - Repetition: Repeat assessment of readiness to quit; if still not ready to quit, repeat intervention at a later date.

The stages of change model: using motivational interview to trigger behaviour change:



Relapse/Recycling: This is a stage and can occur at any point

- Returns to previous behaviour
- May feel disappointed, frustrated or both.



NEGOTIATING FOR BEHAVIOUR CHANGE

Finally, here is a summary of a way to work when you are trying to help an individual (or a group) to change their behaviour in a way that might help their health. Just having it as an outline in your mind can help you and them to take an initial step towards success.

1. **ASK QUESTIONS:** Find out what they are actually doing now and what difficulties they might face in their situation
2. **UNDERSTAND** that even if their concerns and difficulties seem silly to you, they are real for them. Try to empathise, not criticise.
3. **SUGGEST** possible changes or improvements that might work and are practical in their situation
4. **NEGOTIATE** for a change they might try
5. **AGREE** a change they will try
6. **FOLLOW UP:** Arrange to review the situation with them after they have tried making the change
7. **ENCOURAGE, BE POSITIVE, BE PREPARED TO START AGAIN.**

Follow all these and health education can become an enjoyable part of your work.

7.E.2. TOBACCO USE DISORDER

Tobacco addiction is the most widespread addiction and foremost cause of preventable death. It causes lung cancer, Coronary Heart Disease (CHD), chronic bronchitis, COPD, stroke; it is a risk factor for many cancers – cancer of the oral cavity, lip, pharynx, oesophagus, cervix, urinary bladder and kidney. In pregnant women, it increases the risk of low birth weight, prematurity and infant mortality. In children, second-hand smoke can cause ear infections, asthma, respiratory symptoms and infection.

Forms of tobacco: Cigarettes, cigar, pipe, hookah/water pipe, smokeless tobacco, bidi, chewing tobacco.

DIAGNOSTIC FEATURES of tobacco dependence:

- Regular tobacco use (often starting in the morning).
- A strong craving or sense of compulsion to use tobacco
- Difficulty self-regulating the use of that substance despite the risks and harmful consequences
- Withdrawal symptoms – anxiety, craving, low mood, irritability.

Examination

Check vital signs, look for signs of tobacco use (yellow spots on fingers, tooth discolouration), weight loss, high BP (cardiovascular effects), clubbing (lung cancer), stomatitis, palpable lymph nodes above clavicle (lung cancer), wheeze or other signs of COPD on chest examination, tremor of hands, restlessness (anxiety), mental status examination.

MANAGEMENT

Counselling, manage withdrawal by supportive care and management of disease conditions associated with tobacco use.

Advice/Counselling

- Advise all non-smokers not to start smoking or using other forms of tobacco
- Strongly advise all smokers to stop smoking and support them in their efforts
- Individuals who use other forms of tobacco should also be advised to quit, although in smokers with lung disease who cannot quit, switching to non-smoke tobacco may help their lung condition
- It is especially important to quit in the following situations:
 - Pregnant or breastfeeding mothers
 - Existing medical conditions worsened by smoking: CHD, stroke, peripheral artery disease, COPD, other lung conditions; patients with DM must also stop smoking
- Although withdrawal symptoms are unpleasant, they are not dangerous and usually settle within one to two weeks
- In general, stopping suddenly is more effective than trying to reduce the amount smoked gradually
- Set a “quit date” in advance, at a time where there are no other external stress factors (most people smoke more when stressed!)
- If others in the household also smoke, encourage all to plan quitting together
- Suggest strategies to deal with craving: distraction through activity; chewing gum/sukmel/cloves/similar
- Avoid situations where smoking is encouraged – ensure no tobacco is available in the house
- Advise that most smokers relapse after quit attempts, and will only manage to stay completely off tobacco after repeated attempts to quit – encourage patients to try.

Motivational interviewing: see Chapter XIII.

REFERRAL

- Refer to specialist if any signs of lung or heart disease
- Currently, there are no specific smoking cessation services in Nepal, but psychological support may help.

7.F. CONVERSION DISORDER

Sometimes symptoms resembling neurological disorders may be due to psychological causes. Among them, conversion disorders are very common in Nepal. Patient may demonstrate symptoms sometimes for hours or days, but physical evaluation and investigations will show no obvious abnormalities.

Common presentations

- Paralysis, blindness and loss of voice/speech are most common symptoms
- Sensory symptoms: Anaesthesia and paraesthesia, unilateral or bilateral
- Motor symptoms: Abnormal movement, gait disturbance, weakness, paralysis
- Seizure-like episode or collapse, “unconsciousness”
- Depression and anxiety disorder symptoms often accompany the symptoms of conversion disorder.

Difference between seizure and conversion disorder:

Seizure disorder	Conversion disorder
1. Typical symptom presentation that is similar in every episode	1. Symptom presentation may change from episode to episode
2. Lasts mostly for a few minutes	2. May last from minutes to hours
3. Can occur even during sleep	3. Does not usually occur when asleep
4. Bowel, bladder incontinence may be present	4. Bowel, bladder incontinence is usually not present
5. Injuries may be sustained during the episodes	5. Injuries are generally not sustained

MANAGEMENT

Psychosocial management

Conversion disorders are mostly managed by counselling and psychological methods. Patients with conversion disorders often have underlying stressors of life that they are having difficulty managing. For vulnerable groups like women and children, conversion disorder may be caused or triggered by abuse; sometimes collaboration with welfare organisations may be needed.

Advice/counselling

- This is generally a non-lethal disorder
- If any such episodes occur, the patient should be kept in a private and peaceful area. However, when the patient is able to communicate, a conversation with trusted family members or care-givers should be initiated to know about the stressors and what needs to be done about such stressors
- When it occurs in a group of people like in school children, the management steps are the same as for individual cases. Parents and the teachers should be educated about this condition. Interviews and counselling should be done on individual basis. After the event subsides, group education about the illness can be given
- Regular sessions of psychosocial support may be required

8. ADOLESCENT HEALTH SERVICES

ADOLESCENT HEALTH

- “Derived from latin word: adolescence- “to Grow Up”.
- It is a transitional stage of physical and psychological development that includes puberty and occurs between the period of childhood and adulthood.
- Adolescent age group- 10–19 years and youth as 15-24 years.

The Adolescent Sexual and Reproductive Health (ASRH) programme of Nepal envisions enabling all adolescents in Nepal to realise their full potential by making informed and responsible decisions related to their health and well-being and by accessing the services and support they need to do so. These services are expected to be provided at all levels of the health system, with strengthening of Adolescent-friendly health services.

An Adolescent Friendly Health Center (AFHC) should be an environment where adolescents feel comfortable. Efforts should be made to maintain privacy and confidentiality, to ensure that adolescents are comfortable attending clinics. Adolescents must be treated with dignity and respect. During examination of any adolescent girl, a female health professional must be present. Information, education and communication materials relevant to adolescents’ needs should be strategically displayed in AFHCs.

Common adolescent health problems:

Major adolescent health problems	Components
Pubertal issues	Adolescent Growth and Development, Pubertal delay or precocity, Weight and height issues and body image.
Sexual and reproductive Health	Gynaecological and menstrual Problems, Breast issues/gynecomastia, Contraception, Pregnancy, Abortion, STD/HIV, Testicular torsion, Varicocele, Epididymal cyst.
Psycho-social issues	Relationship (Romantic and non-romantic) Development, Adjustment problems, Growing-up issues, Mobile and internet addiction.
Nutrition issues	Healthy eating during Adolescence, Anaemia prevention and management, under nutrition and obesity, Eating Disorders (Anorexia nervosa, Bulimia nervosa, Binge Disorder)
Dermatology	Acne, Hirsutism, Tinea infections
Injuries	Road Traffic Accidents, Drowning, Animal bites, Falls, Fractures, sports injuries, fights/violence-intentional injuries.
Adolescent Mental Health	Psychiatric disorders: Depression, Stress, Self-harm or Suicide, Anxiety, bipolar, personality disorder, Substance abuse including tobacco and alcohol, Sleep Problems

The key friendly components of AFHC mandates facility based clinical and counselling services for adolescents, which are:

- **Equitable**—services are provided to all adolescents who need them.
- **Accessible**—ready accessibility to AFHCs by adolescents i.e., AFHC should be established where adolescents can go without hesitation for example: it should not be placed near labor rooms, integrated counselling and treatment centers, Sexual and Reproductive Transmitted Infections (STI/RTI) center etc.
- **Acceptable**—health providers meet the expectation of adolescents who use the services.
- **Appropriate**—the required care is provided and any unnecessary and harmful practices are avoided.
- **Effective**—healthcare produces positive change in the status of the adolescents; services are efficient and have high quality. The right health services are provided in the right way, and make a positive contribution to their health.
- **Comprehensive**—care provision covers promotive, preventive and curative aspects.

Importance of Adolescent Health Services

Importance of adolescent health services	Key areas
Prevent/protect/promote adolescent health	Preventing pregnancy and poor reproductive outcome, Prevention of STI/HIV, Prevention of risk factors for non-communicable diseases like HTN, DM, Stroke, obesity, substance abuse, Violence and injury prevention, Prevention of mental health problems, Promoting balance diet and physical activity.
Management of adolescent conditions:	Treatment of STI/HIV/Malnutrition, Treatment of mental health diseases, Management of violence including gender-based issues, management of pregnancy, safe delivery and PNC.

Service package

- Information, education and counselling on human sexuality regarding puberty, marriage, sexuality and responsible parenthood among young people.
- Information, education and counselling on prevention and management of RTIs, STDs, and other reproductive health outcomes. See genitourinary infection section.
- BMI screening: See Chapter VI, Section 6 BMI, Overweight and Obesity.
- Hb testing, and management of iron deficiency anaemia: See Chapter VI, 5.C
- Tetanus immunisation: See Chapter IV: National Immunisation Programme
- ANC for pregnant adolescents: See Chapter VII, Section 1 Antenatal Care.
- Contraceptive services, Emergency Contraception services: Young people can safely use any contraceptive method; age or unmarried status are not medical reasons for denying any method to adolescents. Young women are often less tolerant of side effects than older women. With counselling, however, they will know what to expect and may be less likely to stop using their methods. See Chapter VIII, Section 1 Family Planning.
- Safe Abortion Services: See Chapter VII, Section 7 Safe Abortion Services.
- HIV counselling and testing and PMTCT in pregnancy. See Chapter VII, Section 8 PMTCT of HIV.
- Management of common adolescent problems: Dysmenorrhoea, menstrual problems, acne etc.
- Management of gender/sexual violence.
- Nutritional information and education emphasising the importance of specific nutritional requirements of childhood and adolescence, especially for girls.

Counselling and referral: Take time to fully address questions, fears, and misinformation about sex, STIs, contraceptives and other issues:

- Counselling for menstrual problems
- Information and advice on SRH issues
- First aid, counselling and referral in case of physical violence and sexual abuse
- Linkages with addiction treatment centres and referrals
- Promote behaviour change in adolescents to prevent NCDs such as HTN, stroke, CVD DM, etc.
- Increase adolescents' awareness of the adverse effects and consequences of substance misuse, especially alcohol, tobacco and other substances.
- Promote favourable attitudes for preventing injuries and violence (including gender-based violence) among adolescents
- Address mental health concerns of adolescents, stress management, counselling for survivors of GBV/sexual violence.

9. HEALTH OF THE ELDERLY, PHYSIOTHERAPY AND REHABILITATION

Geriatric medicine deals with the clinical aspect of health of old age. Older people have plethora of problems related to health and functional impairment. Ageing is a normal developmental event. It begins with the conception and continues throughout life, until death. With ageing, a deterioration occurs in the functional, emotional, socioeconomic and cognitive areas.

Geriatric assessment should include history taking and gentle physical examination including vitals, reviewing the medications, assessing functional status, assessing support provided by the caregivers and emotional status of the patient and caregivers.

Geriatric clinical assessment and management

- BP, height and weight (BMI) – Every visit
- Hearing and vision – Every two years – Refer to a higher centre
- Assess CVD risk – Refer to higher centre if: coronary artery disease (Ischemic heart diseases), SBP>180, DBP>120, cardiac failure, stroke, TIA, DM with comorbidities, renal failure
- Assess and manage depression: See Chapter X, Section 9.A, (Depression)
- Assess and manage HTN: See Chapter X, Section 1 (HTN)
- Assess and manage DM: See Chapter X, Section 1 (DM)
- Falls: Ask patient to stand up from sitting and walk around a chair. If s/he is unsteady or gives history of fall, take detailed history of the fall, drugs the patient is on, physical examination, advice on preventing falls
- In older men: Ask about lower urinary tract symptoms (urinary frequency, dysuria, difficulty passing urine)
- In older women: Ask and counsel about any problems with menopause; ask about uterine prolapse, urinary incontinence and post-menopausal bleeding; ask about breast self-examination/offer breast examination.
- Communicate older people using verbal mode and non-verbal strategies like tone of voice and facial expression.
- Ask to check for adherence to prescription at every visit and check the use of over-the-counter medicines or herbal products.
- Be aware that many older people have declining vision and hearing, making communication more challenging.

BHS doesnot cover ECG test, Clopidogrel, Atorvastatin.

Description of common geriatric health problem:

Disease	Diagnostic features	Initial Management	Further Management
Ischemic Heart Disease (IHD)	Severe retrosternal, constricting chest pain precipitated by exertion or emotion or at rest, pain radiation to arms or neck or shoulder, associated with nausea or vomiting, dizziness. ECG changes.	Tab Aspirin 300mg Po stat, Tab Clopidogrel 300mg PO stat, Tab Atorvastatin 80mg Po stat, Oxygen therapy and immediate referral.	Continuation of drugs. Life style modification. Regular exercise.
Stroke- Cerebrovascular Accident (CVA)	Any abrupt onset of focal neurological deficit, weakness of face, arm or leg especially one side of the body, confusion, slurred speech, visual defect, trouble walking, headache or vomiting	Maintain Airway, Breathing and Circulation in acute presentations. Check Blood Sugar level. Control seizure using Diazepam. Refer for CT head and to rule out other causes.	Post-stroke rehabilitation (Speech, limb physiotherapy, Cognitive function, Depression). Continuity of medicines. Life style modification.

Benign Prostrate Hyperplasia (BPH)	Storage symptoms- urinary frequency, urgency, nocturia, incontinence Voiding symptoms- urinary hesitancy, straining to void and terminal dribbling	Catheterize if retention of urine Refer for assessment of prostrate, renal function test.	Behavioural modification- void in sitting position, avoid fluids prior to bed time, reduce caffeine, double void the bladder Continuity of care- For medicine and catheterization
Urinary Incontinence	Involuntary loss of urine	Use of absorbent pads or foley's catheters. Refer for identifying cause and management.	Behavioural modification- void in sitting position, avoid fluids prior to bed time, avoid caffeine. Continuity of medicine/ catheterization.
Parkinsonism	Bradykinesia with at least one of the following- rigidity, resting tremor and postural instability.	Refer	Rehabilitation and physiotherapy. Life style modification. Continuity of medicines
Dementia (Most common cause of dementia- Alzheimer's disease)	Cognitive- memory loss, Inability to recognize self and others, poor concentration, speech and language defects, gait disturbance, bladder and bowel incontinence Behavioural & psychological- Agitation, low mood, fear, restlessness, aggression, resisting care, repeating stories, hallucinations, screaming, etc.	Refer to diagnose and rule out other conditions.	Rehabilitation and physiotherapy Nutrition- high caloric diet, low salt diet. Continuity of care with medicine. Life style modification for hypertension, diabetes, obesity, stroke.
Cancer (Signs and symptoms of common cancers)	Lung cancer- Persistent cough, haemoptysis, weight loss, chest pain. Breast Cancer- Abnormal nipple discharge, palpable hard breast mass, skin retraction, axillary lymph node enlargement Cervical cancer: Postcoital vaginal bleeding, suspicious cervical findings. Prostate cancer: Voiding and storage symptoms of BPH, associated lower back pain and weight loss. Colorectal cancer: Change in bowel habits, rectal mass, abdominal pain, P/R bleeding, Anemia.	Symptomatic care (Paracetamol for fever, Paracetamol/Ibuprofen pain, ORS for diarrhea) Refer for diagnosis and management	Continuation of Palliative care Health promotion Physical exercise Nutrition

Falls and Fractures	Frequent fall and fractures of body parts	Maintain ABC in acute conditions. Immobilization of limb if fractures. Pain management using paracetamol/ Ibuprofen Refer for X-ray and further management	Exercise and physiotherapy to maintain balance and strength. Review medicines. Nutrition. Rehabilitation. Life style modification.
Inguinal Hernia	-Protrusion or bulge or projection of organ or part through groin wall. -Dragging pain -Features of intestinal obstruction in obstructed hernia	Symptomatic management Refer for surgery	Life style modification Avoid heavy work or exercise Nutrition
Hydrocele	Scrotal swelling, dull aching pain Transillumination positive	Refer for surgery if symptomatic.	Aspiration of fluid is never recommended.

Note- COPD, pneumonia, UTI, Osteoarthritis, Diabetes, Depression, Acid Peptic Disease, Hypertension, Cataract are also common geriatric health issues, these topics are covered in the respective chapters.

Geriatric Health Promotion:

The rate of ageing depends on individual factors related to the lifestyle, physical activity, nutrition, consumption of alcohol or tobacco and disease screening.

Health promotion strategy	Recommendation
Nutrition advice	Calorie requirement: 30-35Kcal/kg/day for healthy older person and 25-30Kcal/kg/day for bedbound older person.
	Protein requirement: 1-1.2g/kg/day for healthy person, up to 1.5g.kg/day for person recovering from illness and very high protein diet for patients with pressure sore. Sources of proteins- cereals, pulses.
	Intake of complex carbohydrate (fruits, vegetables, greens)- encouraged
	Intake of salt should be limited to half a teaspoon every day
	Food with antioxidant properties (green, yellow vegetables and fruits like carrots, sweet potatoes, spinach, tomato and orange) are recommended.
	Vegetarian require Vitamin B-12 supplement.
	Exposure to sunlight is necessary to produce Vitamin D.
	Small but frequent diet is advised.
Exercise	Perform at least 150 minutes of moderate intensity aerobic physical activity throughout the week Or at least 75 minutes of vigorous intensity exercise throughout the week.
	Aerobic activity should be performed in spells of at least 10 minutes' duration.
	Muscle strengthening activity, involving major muscle group, should be done 2 or more days a week.
	(Always advise if clinical condition allows)
	Examples of exercise:
	- Moderate intensity- Brisk walking

	- Vigorous intensity- Climbing stairs, running
	Improving balance and coordination- Tai chi, yoga, Nordic walking
	Minimize sedentary behaviour doing some minor activities at home.
Social Interaction	Enhance social networks and interaction to promote mental health.
	Provide social support to feel inclusive in the society to be more competent.
Life-style modification	If the older person is ready to quit smoking or alcohol, refer them to cessation programs. Daily exercise and avoiding sedentary life-styles are the key. Insist older people to quit alcohol/smoking in every visit.
Screening for disease prevention	Cervical Cancer screening- Women is advised to undergo Pap smear testing after 40 years of age till 65 years every 3-5 years.
	Breast Cancer screening: Women between 50-69 years of age, breast cancer screening is advised with mammography every 2 years and advise breast self-exam if mammography is not available.
	Colorectal cancer screening can be done through the age of 75 years.
Vaccination	Few vaccines for older people contribute for vaccine preventable condition like pneumonia, influenza and shingles based on availability of the country.

BHS doesn't cover vaccines for older people, screening tests for cancers

Geriatric physiotherapy and Rehabilitation:

- Physical activity in older people is critically important in the prevention of disease, maintenance of independence, reducing disability and improvement of quality of life.
- Goal of physiotherapy and rehabilitation in older people is to maintain balance, strength, coordination, motor control, flexibility and endurance.

Components of geriatric physiotherapy and rehabilitation:

- Pain management: The patient comfort and control of pain are the ultimate goal.
- Flexibility and joint Range of Motion (ROM): Flexibility losses with aging have been associated with muscle disuse and soft tissue restraints such as collagen alterations.
- Proprioception and coordination: Proprioception indicate sensations of the deep organs and relationship between muscles and joints. Coordination is the capacity to perform movements in a precise, smooth and controlled manner.
- Strength and Endurance: Exercise has beneficial physiologic effects in older adults, including effects on strength, aerobic capacity, flexibility, and bone strength.
- The use of orthotics: The use of orthotic devices to support musculoskeletal function and the correction of muscle imbalances and inflexibility in uninjured areas.

Special consideration for Geriatric population:

- In general, the aged population has more comorbid conditions, each of which must be considered when rehabilitation is planned.
- Return to completely independent living may not be possible until full weight bearing activity can be tolerated.
- Although a person may be physically capable of self-care, cognitive limitations may preclude living in an unsupervised setting.
- Comorbid conditions such as cardiac or pulmonary disease may limit exercise tolerance and restrict the patient's ability to participate in rehabilitation.

Recommendations

Specific conditions	Recommendations and counselling
Arthritis	<ul style="list-style-type: none"> • Aerobic exercise (Walking and cycling) • Icing the affected area for 10 minutes following physical activity • Physical therapy (application of heat) to relieve pain • Rest and splinting to reduce pain and spasm
Cognitive Impairment	<ul style="list-style-type: none"> • Keep activity logs to track physical activity • Exercise minimum of 30 minutes per day
Osteoporosis	<ul style="list-style-type: none"> • Balance training and resistance training. • Strengthening exercise with slow and less weightbearing • Avoid fall. • Nutrition- Calcium and Vitamin D
Chronic Back pain	<ul style="list-style-type: none"> • Aerobic exercise, Stretching exercise, Walking, Yoga, Tai Chi
Gait Problems	<ul style="list-style-type: none"> • Use of crutches and walkers, Balance training
Functional Impairments (Limb weakness)	<ul style="list-style-type: none"> • Use of wheelchairs, Bathroom and self-care aids (Raised toilet seats, grab bars)
Missing body parts	<ul style="list-style-type: none"> • Prosthesis and Orthotics
Chronic diseases (DM, Depression, Coronary artery disease, CHF, CKD, Disability, Stroke)	<ul style="list-style-type: none"> • Aerobic exercise, Resistance training

BHS doesn't cover physiotherapy and rehabilitation services

Descriptions on different exercises:

1. Aerobic exercise:

- Aerobic exercise is widely recommended as part of the exercise prescription for older adults because of its positive benefits on cardiovascular health, glucose metabolism, and body composition.
- Considered the cornerstone of endurance training, characterized by moderate energy expenditure over a prolonged period of time.
- Is any activity that uses large muscle groups, can be maintained continuously and is rhythmic in nature.

Examples: Walking, cycling, swimming, jogging, dancing, hiking, long distance running.

2. Resistance Exercise:

- Resistance exercise is one of the modalities of exercise chosen for physical conditioning.
- Resistance training is any activity that causes muscles to contract against an external force.
- It is also known as strengthening exercises.

Examples: Push-ups, sit ups, squat, chin-ups, lifting weights, using resistant bands, etc.

3. Balance exercise:

- Balance training is undertaken in order to prevent falls/injury.
- It improves posture, strength, standing balance and locomotor performance in older adults and strengthen self-efficacy in balance control leading to improved fall-related self-efficacy, reduced fear of falling, increased walking speed, and improved physical function.

Examples: Standing with one leg and raising other leg, standing up and sitting down from a chair without using hands, walking a tightrope, walking heel to toe, doing yoga or thai chi, etc.

Advice and Referral:

- Perform regular exercise and take care on regular diet.
- Refer for diagnosis of any specific geriatric health issue.
- Refer for any deformity related issues.
- Refer for any specific physiotherapy and rehabilitation care to respective facility.

COMMON EYE, ENT, ORAL, SKIN CONDITIONS

1. EYE DISORDERS

1.1. CONJUNCTIVITIS

Acute inflammation of the conjunctiva is called conjunctivitis. Acute conjunctivitis is usually a benign, self-limited condition or one that is easily treated. Conjunctivitis is mainly caused by virus, bacteria and allergens.

DIAGNOSTIC FEATURES

- Discomfort in one or both eyes
- Discharge from one or both eyes. It may be watery in viral and allergic conjunctivitis but purulent in bacterial conjunctivitis
- Marked redness of conjunctiva
- Swelling of lids with profuse mucopurulent discharge
- Chemosis of conjunctiva
- Rarely photophobia (suggests keratoconjunctivitis)
- Diminution of vision due to corneal scar in viral keratoconjunctivitis.

Treatment:

- Wash eyes with clear and cold water
- Ciprofloxacin eye drop (0.3%) one drop six times a day and ciprofloxacin eye ointment (0.3%) at bed time for seven days.

ADVICE

Prevention of healthy eye being infected can be achieved by:

- Not touching the eyes with finger
- Not rubbing the eye
- Lying on affected side
- Not using the same handkerchief for both eyes
- Separate eye drops bottle and eye ointment tube to each patient to prevent infection.

Prevention to be taken by other family members

- Handkerchiefs and towels used by patient must be kept separate.

REFERRAL

- If patient does not respond with the treatment or redness of the eye increases
- Reduced visual acuity due to viral keratoconjunctivitis
- Photophobia
- Severe headache and vomiting with red eye.

1.2. STYE (EXTERNAL HORDEOLUM)

It is an acute suppurative inflammation of eyelid, most commonly due to *Staphylococcus aureus*.

DIAGNOSTIC FEATURES

- Pain association with swelling of lid
- Watering from eye
- Stage of cellulitis – localised, hard, red, tender, swelling at lid margin associated with marked oedema.

MANAGEMENT

Drug treatment:

- Ciprofloxacin eye drops two drops two-to-four-hourly and ciprofloxacin eye ointment at bed time
- Ibuprofen 400mg PO TDS and SOS
- Cloxacillin 500mg PO QDS for five days: if infection is spreading from the eyelid.

Advice

- Hot compression two to three times a day in cellulitis stage.

REFERRAL

- For abscess formation, recurrent stye, loss of vision.

1.3. BLEPHARITIS

Blepharitis is the inflammation of eyelid margins that may be acute or chronic. It is usually caused by bacterial infection; chronic blepharitis is due to non-infectious aetiology.

DIAGNOSTIC FEATURES

- Red swollen itchy eyelids
- Gritty or burning sensation
- Excessive tearing
- Crusting of eye lashes in the morning
- May have blurred vision due to watering eyes, but visual testing is normal.

MANAGEMENT

Drug treatment:

- Topical antibiotics: Ciprofloxacin eye drop and eye ointments
- Oral antibiotics: Doxycycline 100mg BD for two to four weeks for chronic blepharitis.

Advice

- Maintain eyelid hygiene, warm compression, lid massage, gentle cleansing of eyelid margin with lukewarm water for seborrheic blepharitis.

REFERRAL

- Not responding to above treatment
- Associated other eye disorder.

1.4. TRACHOMA

Trachoma is a form of communicable keratoconjunctivitis caused by *Chlamydia trachomatis*. It is a leading cause of preventable blindness worldwide.

DIAGNOSTIC FEATURES

- Lacrimation
- Foreign body sensation
- Mucopurulent discharge from one or both eyes
- Redness of the conjunctiva
- Appearance of papillae and follicle in the conjunctiva
- Vascularised infiltration in the upper part of cornea: pannus
- Signs of complication, e.g., scarring of eyelids, trichiasis, entropion, corneal ulcer, corneal opacity and blindness.

MANAGEMENT

Local treatment:

- Tetracycline 1% eye ointment (NLEM) applied locally at bedtime for one and half months.

Systematic treatment: Tab azithromycin with 10mg/kg BW (adult: 1g) as a single dose.

Advice: Prevention – Towels and other articles used by patient should be kept separate.

REFERRAL

Patient should be referred to hospital:

- If patient complains of increasing pain in the eye
- If redness increases
- If patient develops entropion
- If opacity appears in the cornea.

1.5. CATARACT

- Usually a disease of elderly people (over 45 years). It is the clouding of the clear lens behind the pupil. If not treated reasonably in time (while patient can still see a little), the eye may remain blind even after surgery

DIAGNOSTIC FEATURES

- Gradual loss of both near and far vision
- Patient may initially just complain of light fragmentation at night
- Patient may describe cloudy vision
- No pain or watering or other symptoms.

Important signs:

- Usually, eye appears normal on external examination
- In advanced cases the pupil may appear cloudy/grey
- On examination with an ophthalmoscope, black spots can be seen within the lens, or the milky-white lens may be seen
- The red reflex is not visible.

Differential diagnosis:

Other causes of loss of vision in later life: glaucoma, retinal diseases, DM, chronic trachoma, presbyopia (the stiffening of the lens in advanced age, which leads to loss of near vision).

MANAGEMENT**Advice**

- In elderly, explain that this is a slowly progressing disease, and the decision to perform surgery depends on the degree of handicap the patient is experiencing in daily life
- Treatment with medicine does not help this condition
- In babies explain to parents that urgent treatment is necessary, to prevent permanent damage to the eye.

REFERRAL

- To eye hospital for advice and treatment.

1.6. RED EYE

Red eye occurs when small vessels that are present on the surface of the eye become enlarged and congested with blood. This indicates the several different health problems.

CAUSES

- Conjunctiva- Conjunctivitis, dry eye, sub conjunctival hemorrhage, trauma
- Eye lids: Stye, chalazion, blepharitis
- Cornea: Abrasion, foreign body, keratitis, laceration, contact lens wear, corneal ulcer.
- Anterior chamber/ Iris: Iritis, hyphemia, hypopyon, Glaucoma
- Orbit: Orbital cellulitis, Acute dacrocystitis, trauma

DIAGNOSTIC CLUE OF COMMON CONDITIONS

- Acute conjunctivitis: Eye discharge, eye discomfort, congested conjunctiva, no effect on vision.
- Corneal foreign body: Foreign body in or on cornea, intense irritation and profuse watering, photophobia.
- Keratitis: Painful red eye, eye discharge, loss of vision.
- Corneal ulcer: Painful red eye worsening with movement of eyelids, photophobia, eye discharge, reduced vision.
- Uveitis: Painful red eye, photophobia, blurred vision
- Acute congestive glaucoma: Red eye associated with unilateral headache and malaise and nausea/vomiting, photophobia.
- Subconjunctival hemorrhage: Generally asymptomatic, demarcated area of extravasated blood beneath the surface of eye, normal vision, no eye discharge, no photophobia.

INITIAL MANAGEMENT:

- Wash eyes with clear and cold water
- Topical antibiotics (Ciprofloxacin eye drop 2 drops every 4 hourly and Ointment apply HS) if infection is suspected.
- Pain management with Paracetamol/Ibuprofen.

REFERRAL

- Any condition leading to red eye should be referred for evaluation after initial management.
- Urgent referral is indicated in any conditions leading to red eye with ocular pain, photophobia, blurred vision, trauma and or headache.

1.7. NEONATAL OPHTHALMIA SYNDROME (NEONATAL CONJUNCTIVITIS)

Neonatal conjunctivitis is a bilateral or unilateral erythema/swelling of eyelids with purulent discharge within 28 days of birth, due to transmission from infected mother (cervicitis) to child during delivery. It is caused by gonorrhoea or chlamydia infection and if not treated early, may lead to blindness.

DIAGNOSTIC FEATURES

- History of STI in the mother or her partner
- Risk assessment for STI
- Clinical findings on the eyes.

Clinical features seen in neonates:

- Clinical features may start from the first day up to 28 days after birth
- Swelling of both eyelids and conjunctival congestion
- Discharge from the eyelids
- Crusting and ulceration around the lid margin.

MANAGEMENT

Treatment

Treat mother and father with:

- Inj Ceftriaxone 250mg IM (gonorrhoea) or Tab Cefixime 400mg PO stat PLUS
- Azithromycin – 1g PO (chlamydial infection)

Treat the child with:

- Ceftriaxone 50mg/kg BW (not exceeding 125mg) IM single dose (gonorrhoea) PLUS Azithromycin 20mg/kg BW once daily for three days.

COUNSEL MOTHER AND FAMILY

To do hourly cleaning of baby's eyes (both eyes) with boiled and cooled water 4Cs and

Offer VDRL testing

Mother and her partner to be treated for gonorrhoea and chlamydia

BHS doesn't cover VDRL

REFERRAL

- Offer HIV testing
- Advise early hepatitis B vaccination.

BHS doesn't cover HIV testing

Urgent referral:

- Neonates with swollen, abundant purulent discharge, swollen eyelids or corneal haziness
- Symptoms not improving in 48 hours.

1.8. PROBLEMS WITH VISUAL ACUITY – PARTICULARLY IN SCHOOL-AGE CHILDREN

Refraction problems can be divided into short-sightedness, far-sightedness and astigmatism. They are caused by the shape of the lens within the eye not matching the retina at the back of the eye, so that no sharp picture can be produced.

This could be because the eye is longer than usual (in myopia or short-sightedness) or because the lens is too stiff (presbyopia in older people) or not rounded enough (far-sightedness – hypermetropia in children and young people), or because the lens, cornea or eye ball is not quite round – in astigmatism.

Problems with visual acuity can be inborn or of late onset and develop slowly over time. Young children whose vision is below normal are not aware of this problem, or able to explain it, as their world has always looked blurry, so they may just seem slow at school or clumsy.

Older children and adults whose vision gets worse are usually aware and able to seek help. A lot of refraction problems are improved when the patient looks through half-closed eyelids or through a small hole in a piece of paper. Refraction problems are invariably worse in poor light.

DIAGNOSTIC FEATURES

- Inborn or slow-onset
- May have no eye symptoms at all
- Myopia (short-sightedness) is usually apparent by school age or age 10; children hold fine work or reading very close to their face, may not be able to read the blackboard.
- Children who are far-sighted (hypermetropic) may have trouble with reading small print or handwriting but are able to see the blackboard
- In presbyopia (far-sightedness of old age) onset is usually after age 40; the patient notices that they have to hold things further away to see them clearly and cannot see very small items/read small letters
- Astigmatism can cause problems with both near and far vision
- Problems are usually worse in poor light.

Important signs

- Reduced visual acuity either on Snellen chart test or when testing close vision – but generally, if one test is abnormal, the other will be normal: refraction problems affect either near or far vision and rarely both
- Patient may half-close their eyes when asked to read or look at a small object
- Normal visual field.

Differential diagnosis

Cataract, glaucoma, neuritis, retinal problems, uveitis, stroke, etc.

MANAGEMENT

- Refraction problems can almost always be treated with glasses or contact lenses
- Slow-onset problems with near vision in people over 40 (presbyopia) need vision testing.

REFERRAL

- Sudden loss of vision, or slow deterioration of vision in adults – refer to an eye hospital
- Strabismus (also called “squint”) is when the eyes do not point in the same direction. It is very common in young children under three months. If the problem persists after the age of six months, refer. Also, a new-onset squint at an older age needs referral.

2. EAR, NOSE AND THROAT DISORDERS

2.1. FOREIGN BODY IN NOSE

This is most common in children. They put a pebble, piece of paper, or kernel of corn inside their nose. Sometimes, a leech may get into the nasal cavity accidentally.

DIAGNOSTIC FEATURES

- Unilateral nostril blocked
- Unilateral foul-smelling nasal discharge
- On examination foreign body is seen in the nasal cavity
- Possible epistaxis.

MANAGEMENT

Treatment: Removal of the foreign body.

- Take a loop or Jacobson Horne probe or use an artery forceps
- Ask the attendant to hold the child properly
- Insert the loop/forceps in the nose; go superior to foreign body first, then posteriorly and give steady pressure anteriorly
- In case of leech in the nostril, try instilling a few drops of a strong salt solution (dissolve several spoons of salt in a small glass of water and drip into nostril).

However, in small children it is very difficult to keep them still and there is a risk of injury – it may be safer to refer.

REFERRAL

- Refer if foreign body could not be removed
- If foreign body is not visible on inspection.

2.2. NASAL VESTIBULITIS

Nasal vestibulitis, or nasal folliculitis, is an uncommon acute infection of the nasal vestibule, the area just inside the nostrils, usually with Staphylococcus. Precipitating factors include nose picking or excessive nose blowing, which can result in crusting and bleeding around the nasal hair follicles.

DIAGNOSTIC FEATURES

- Pain and swelling of nose
- The sudden onset of unusual tenderness upon touching or moving the nose
- Nasal obstruction is not usually reported
- On examination, an area of swollen mucosa, crusting, or sometimes a pimple-like lesion on the nasal mucosa may be visible
- The nose may appear swollen, erythematous and warm externally in some cases
- The septum is not usually affected because most of the hair follicles are located in the vestibular skin and mucosa.

MANAGEMENT

Treatment

- Tetracycline or mupirocin ointment BD for five days; apply inside both nostrils
- Amoxicillin 500mg PO TDS for five days, if no response after two to three days.

Advice:

- Application of warm compresses, steam inhalation.

REFERRAL

If not responding to above treatment.

2.3. FURUNCULOSIS OF EAR

This is a bacterial infection of the hair follicles in the ear canal. It is usually caused by ear picking.

DIAGNOSTIC FEATURES

- Acute pain in the ear after ear picking
- Tenderness when the tragus is pressed or when the pinna is moved
- Examination of ear canal (which may be painful) shows a tender, red spot in the hair-bearing area of the ear canal.

MANAGEMENT**Treatment**

- Tab ibuprofen 400mg TDS or paracetamol 500mg four- to six-hourly or as necessary
- Antibiotic: Cap Cloxacillin 500mg QDS for seven days (doxycycline in case of penicillin allergy)
- Packing the ear canal with small ribbon gauze soaked in clotrimazole ointment. Depending on the severity of the case, packing is changed every day or every two days until the infection is controlled.

ADVICE

- Discourage ear picking
- Examine blood sugar to rule out DM.

REFERRAL

- Refer the case to hospital if granulation tissue develops or the patient does not respond to the above treatment.

2.4. OTITIS EXTERNA

Otitis Externa (OE) is an inflammation or infection of the External Auditory Canal (EAC), the auricle, or both. It most commonly occurs in swimmers, or after repeated trauma (often caused by patient scratching the ear), wearing ear phones or ear plugs, or in those with allergies.

Classification

- Acute diffuse OE – Most common form of OE, typically seen in swimmers
- Acute localised OE (furunculosis) – Associated with infection of a hair follicle
- Chronic OE – Same as acute diffuse OE but is of longer duration (>6 weeks)
- Eczematous (eczematoid) OE – Encompasses various dermatologic conditions (e.g., atopic dermatitis, psoriasis, SLE and eczema) that may infect the EAC and cause OE
- Necrotising (malignant) OE – Infection that extends into the deeper tissues adjacent to the EAC; occurs primarily in immunocompromised adults (e.g., diabetics, patients with AIDS).

DIAGNOSTIC FEATURES

- Pain in the EAC
- Swelling and redness
- Discharge from the EAC
- Itching and hearing loss.

Treatment:

- Analgesics: Ibuprofen 400mg TDS/SOS
- Antibiotic ear drops: Ciprofloxacin (or gentamicin – NLEM) two to three drops TDS for five to seven days
- If severe: Antibiotic cloxacillin 500mg QDS for seven days (doxycycline in those with penicillin allergy).

ADVICE

- To instil ear drops, lie down on your side; stay lying down for a few minutes after putting ear drops in each ear so drops can trickle down into the ear canal
- To prevent occurrence, do not pick or scratch the ear; use a small amount of warm oil once or twice a week; wear ear protection when swimming.

REFERRAL

- For complications (periauricular cellulitis, malignant external otitis), significant hearing loss.

2.5. OTOMYCOSIS

Infection of the ear canal from a fungal species (e.g., Candida, Aspergillus).

DIAGNOSTIC FEATURES

- Ear itching
- Ear fullness
- Earache (sometimes)
- Ear discharge (later)
- On otoscopy – White/black debris on EAC or tympanic membrane.

MANAGEMENT**Drug Treatment:**

- Clotrimazole 1% ear solution two drops three to four times a day for seven to ten days (NLEM)
- Pain management with ibuprofen 400mg PO TDS for three days.

Advice:

- Keep ear dry, removal of debris, apply gentian violet paint, avoid forceful ear cleaning, avoid keeping oil/water in EAC, and avoid swimming in polluted water.

REFERRAL

- No improvement with above treatment, external canal stenosis.

2.6. ACUTE SUPPURATIVE OTITIS MEDIA (ASOM)

ASOM is most common in children between the ages of six months and three years (up to six years). Such infants have a shorter, more horizontally placed Eustachian Tube (ET) than adults, allowing contamination from the regurgitation of feed.

DIAGNOSTIC FEATURES

- History of common cold followed by pain in the ear, usually sudden-onset
- Fever, typically high-grade in children
- Impairment of hearing, feeling of ear fullness
- Earache due to pus and necrosis of tympanic membrane
- Discharge and perforation may occur if not treated timely
- Otoscopy will show redness, bulging on TM and middle ear effusion.

MANAGEMENT

Mild episodes of ASOM, associated with URTI, in otherwise healthy children often resolve spontaneously within a few days. If the parent is able to observe the child and return if the problem gets worse, observation and simple analgesia may be the only treatment required.

Drug treatment:

- Amoxicillin is the first-line antibiotic – 45mg/kg BW BD for 5–10 days. (Adult dose: 1,000mg BD or 500mg TDS)
- Paracetamol 15–30mg/kg BW TDS or QDS (adult dose 500–1,000mg max QDS)
- Ibuprofen 10–15mg/kg BW PO TDS for three days for pain (adult dose: 400mg TDS).

Advice:

Avoid water/oil into the EAC; discourage nose blowing and sniffing up secretions; avoid feeding small children while lying down; counsel to avoid exposure of young children to smoke.

REFERRAL

- No response to above treatment, persistent hearing loss, toxic-looking child.

2.7. CHRONIC SUPPURATIVE OTITIS MEDIA (CSOM)

Chronic Suppurative Otitis Media (CSOM) is a chronic inflammation of the middle ear and mastoid cavity. In CSOM, otorrhoea lasts for more than six weeks. CSOM is most commonly preceded by acute otitis media.

DIAGNOSTIC FEATURES

- Safe type: History of ear discharge, which is intermittent, mucoid profuse, non-offensive and related to cold
- Unsafe type: Continuous, foul smelling and purulent ear discharge, involves cholesteatoma
- Hearing loss for more than six weeks
- Otoscopy shows perforation in tympanic membrane.

MANAGEMENT

Drug treatment:

- Topical antibiotics – ciprofloxacin ear drops three to four drops every four to five hours for 14 days
- Amoxicillin 45mg/kg BW twice per day for 10 days. (Adult dose: 500mg TDS if recurrent or acute onset.)

Advice:

Keep ear dry, avoid putting oil/water in the canal, discourage nose blowing and sniffing up secretions; avoid feeding small children while lying down; counsel to avoid exposure of young children to smoke; put cotton impregnated in Vaseline in the ear before taking a bath.

REFERRAL

- If condition not improving after treatment
- Unsafe type of CSOM, safe CSOM more than 12 years of age, associated with fever, vertigo, hearing loss, mastoid tenderness, facial paralysis.

2.8. ACUTE LARYNGITIS

Acute laryngitis is acute inflammation of the larynx. It is a common and self-limiting inflammatory condition lasting less than three weeks usually associated with either an URTI or acute vocal strain. It is most commonly caused by a virus, although bacteria may also be responsible.

DIAGNOSTIC FEATURES

- Change in voice, hoarseness of voice
- May have sore throat
- Unproductive cough
- May have rhinorrhoea
- May have fever, malaise.

MANAGEMENT**Drug treatment**

If patient does not feel better with three to five days of supportive care and if there is evidence of secondary bacterial infection (very red throat with pus discharge, fever, swollen lymph nodes):

- Amoxicillin 500mg PO TDS for 5-7 days; for children, 45mg/kg BW BD for five to seven days OR Cotrimoxazole (400mg Sulfamethoxazole + 80 mg Trimethoprim) two Tabs BD for seven days (for children see Chapter XIV, Section 2 (Dosage Charts)) OR Doxycycline 100mg BD for seven days (adults only).

Advice:

- Steam inhalation, plenty of fluid, voice rest.

REFERRAL

- If hoarseness of voice does not improve with the above treatment, refer to hospital.

2.9. ACUTE SINUSITIS

Acute inflammation or congestion of the frontal or paranasal sinuses is one of the most common ENT problems in Nepal. It usually lasts for less than four weeks. The most common cause is viral infection. It is usually associated with rhinitis.

DIAGNOSTIC FEATURES

- Frontal or facial headache, worse when bending down
- Nasal obstruction or congestion
- Sometimes purulent or blood-stained nasal discharge
- Symptoms of malaise or fever may be present
- Key patient examination: Tenderness over the sinuses
- Bacterial sinusitis lasts more than 10 days with severe symptoms (high fever, severe constant pain, purulent nasal discharge).

MANAGEMENT**Drug treatment:**

- Paracetamol 500–1,000mg TDS/SOS for pain and fever
- Oxymetazoline 0.025%, two drops QDS for five days.

Antibiotics: only if infection persists more than seven days or there is bloody purulent discharge or fever:

- Amoxicillin 500mg TDS or doxycycline 200mg stat then 100mg OD for five to seven days or azithromycin 500mg OD for three days.

Advice:

- Steam inhalation may help.

REFERRAL

- Patients not responding to the above treatment for seven days
- Recurrent attack of sinusitis
- Cranial nerve palsy, vision changes, meningeal signs present.

2.10. PHARYNGITIS/TONSILLITIS**Pharyngitis:**

Pharyngitis is usually a viral infection of the throat that is self-limiting. It can affect the vocal cords, and therefore the voice, but is unlikely to have any serious consequences.

Tonsillitis:

Tonsillitis may also be viral, but especially in children is often bacterial (usually Streptococcus). If untreated, there is a risk of spread of the infection, or post-infectious complications like scarlet fever, rheumatic fever and kidney problems.

Scarlet fever:

Scarlet fever is a generalised infection with the same bacteria that cause tonsillitis and responds to the same treatment: i.e., penicillin or erythromycin/azithromycin. In this condition, together with the throat pain and swollen glands in the neck, there is high fever, often abdominal pain and a rash that starts in the neck, axilla and groin area, and spreads all over the body.

DIAGNOSTIC FEATURES**Symptoms:**

- Throat pain
- There may be fever and signs of URTI
- The voice may be hoarse.

Signs:

- In simple tonsillitis there are often tender palpable lymph nodes under jaw
- On examining the throat, redness can be seen (pharyngitis), or the tonsils may be large and red, often with yellow pus (tonsillitis)
- Drooling, stridor and inability to speak suggests diphtheria or epiglottitis. Give one dose of antibiotic and refer to hospital – Do not try to examine the back of the throat!
- Inability to open the mouth suggests peritonsillar abscess – Refer.

MANAGEMENT**Drug Treatment:****Simple pharyngitis:**

- No antibiotics needed, give paracetamol or ibuprofen for two to three days, advice as below.

Tonsillitis:

- Azithromycin – Adult dose 1g OD for six days. Child: 10–15mg/kg BW for six days OR
- Amoxicillin – Adult dose 500mg PO TDS. Child: 45mg/kg BW BD for 10 days.

NOTE: in some viral infections, taking amoxicillin can cause a rash to develop. This is not the same as an allergy, but if this happens, the antibiotic has to be changed.

ADVICE:

- Take painkillers if necessary
- Drink plenty of warm fluid (not too hot), gargle with salt water
- In case of tonsillitis, advise that this infection can recur, especially when not taking the full dose of 10 days of antibiotics, in which case they may need further treatment.

Follow-up:

All cases, check for improvement after 48 hours.

REFERRAL

- Any suspicion of diphtheria, peritonsillar abscess, epiglottitis
- Any severe, not responding to treatment and recurring cases.
- Recurrent tonsillitis.

2.11. EAR WAX AND WAX REMOVAL

Wax is normally present in the ear canal without causing any problems, but when impacted it can cause hearing impairment and other otological symptoms, such as earache, ear fullness, tinnitus and pain.

DIAGNOSTIC FEATURES

- Pain in the affected ear
- Hearing impairment
- Diagnosis is confirmed by the presence of black or yellow semisolid hard mass seen in ear canal and sometimes swelling on ear examination.

MANAGEMENT

Asymptomatic wax requires no treatment.

Soft (yellow) wax should be removed by syringing the ear (done with lukewarm water in a large syringe without a needle).

Hard (dark brown or black) wax without pain: Soften the wax with:

- Warm salt water three to four drops in the affected ear or other wax solvents (commercial) three times a day for 7–10 days in the affected ear, followed by syringing.

For hard wax with pain:

- Tab ibuprofen 200–400mg TDS, after food OR
- Paracetamol 500–1,000mg four- to six-hourly or as necessary
- Warm salt water, three to four drops or other wax solvents (commercial) three times a day for 7–10 days in the affected ear and syringing as above.

Advice

- Discourage ear-picking habit
- Discourage instillation of raw oil and other kinds of drops in the ear.

Technique for wax removal using ear syringing – 50ml syringe

Indications: Soft wax (usually appears yellow)

Contraindication: Known perforated tympanic membrane

Pre-requisites: Hard wax should be softened first by regular application of wax softener for 7–10 days.

Equipment: 50ml syringe, otoscope, lukewarm water

Analgesics: Not needed

Technique:

- Use ear softener, three to four drops for 15–30 min prior to this procedure
- Take 50ml of lukewarm water in a 50ml syringe and remove needle
- Then irrigate the ear with warm water; the irrigation stream should be directed along the superior wall of the ear canal
- Repeat the procedure for 2–3 times and check ear canal with otoscope
- If adequate wax is not removed with irrigation, refer to hospital.

Complications: Trauma to the ear canal, perforation of ear drum, otitis externa

REFERRAL

- If unable to remove the wax.

2.12. SCHOOL STUDENTS, HEARING SCREENING BY CONVERSATION

Hearing screenings: A hearing screening is the most basic form of testing a person's ability to hear. A hearing screening is generally a preliminary test to see if more in-depth testing needs to be done.

Speech testing: Despite its name, speech testing does not test speech; it tests how well a person can hear speech.

The whispered voice test: The whispered voice test is a simple test that uses the health worker's voice to gauge a person's hearing ability.

Here is how the whisper test is performed:

- The health worker stands about three feet behind the patient. This eliminates the possibility of lip reading
- The patient will cover the ear opposite the one being tested
- The health worker will ask the patient to repeat a set of three random numbers at three different loudness levels. The loudest number sequence will be at a conversational level and the softest number sequence will be in a whispered voice.

The patient will pass the whisper test if s/he can repeat all three numbers correctly at each level of loudness or repeat three sets of numbers correctly more than 50% of the time at each loudness level.

REFERRAL

- If patient cannot repeat back the numbers at any one level, s/he will be considered as having a hearing impairment, and needs referral.

3. ORAL HEALTH PROBLEMS

Oral disease qualifies as a major public health problem owing to its high prevalence and significant social impact. Oral health is considered fundamental to general health and well-being. The most common oral diseases are dental decay and periodontal gum disease.

3.1. GINGIVITIS

Gingivitis is inflammation of the gums, or gingiva. It can be dental-plaque-induced and non-plaque-induced. The most common cause is accumulation of bacterial plaque between and around teeth. It is highly prevalent among cancer patients, those who smoke or have vitamin C deficiency or DM and those with poor oral hygiene conditions; it is also more common in pregnancy.

DIAGNOSTIC FEATURES

- In mild cases of gingivitis, there may be no discomfort or noticeable symptoms
- Bright red or purple gums
- Tender gums that may be painful to the touch
- Bleeding from the gums when brushing or flossing
- Halitosis (bad breath)
- Inflammation, or swollen gums.

MANAGEMENT

- Drug treatment: Treat with amoxicillin and metronidazole for seven days in advanced cases, antipyretics and analgesics as needed
- Advice: Brushing teeth with a soft brush twice a day, regularly rinsing mouth with clean water/salt water or antiseptic mouthwash (commercial)
- Counsel to quit smoking/alcohol and tobacco chewing

REFERRAL

- For scaling and advanced gingivitis at higher centre
- For associated systemic diseases, associated with dental caries, plaque formation and for periodontal conditions.

3.2. STOMATITIS

Stomatitis, a general term for an inflamed and sore mouth, can disrupt a person's ability to eat, talk and sleep. Stomatitis can occur anywhere in the mouth, including the inside of the cheeks, gums, tongue, lips, and palate.

DIAGNOSTIC FEATURES

Presents with mouth pain, mouth sores and fever.

MANAGEMENT

Drug treatment

- Usually not necessary, resolves even without treatment. Pain management with paracetamol/ibuprofen can be given. It may be helpful to rinse mouth with warm salt water.

Advice

- Diet – Avoid alcohol, sugar, smoking, spicy or salty food, citrus-based fruits
- Rinse mouth regularly, drink more water.

REFERRAL

- If severe pain, largemouth sore, associated with other dental conditions (caries, abscess)
- Growing non-healing mouth sore (may be cancer).

3.3. GLOSSITIS

Glossitis means inflammation of the tongue. It is mainly caused by allergic reactions or injury to the mouth and also associated with some diseases (anaemia, malnutrition, infections) and vitamin B12 and vitamin C deficiency.

DIAGNOSTIC FEATURES

- A swollen tongue, pain in the tongue
- Change in the texture of the surface of the tongue, different colour of the tongue's surface
- Loss of ability to speak or eat properly
- Difficulty swallowing.

MANAGEMENT

Advice: Maintain healthier nutrition, practice good oral hygiene with brushing, and avoid irritants like smoking, alcohol, acidic foods.

Drug treatment-

- If anaemia present, Iron one Tab OD for six weeks
- Try Tab vitamin C 1 tab OD for four weeks.

BHS doesn't cover Vitamin

REFERRAL

- All patients with systemic manifestations and associated other dental diseases
- If not responding to above treatment.

3.4. PERIODONTAL ABSCESS

The collection of pus in the gum and periodontal membrane is called periodontal abscess. It usually occurs in patients who have dental caries.

DIAGNOSTIC FEATURES

- History of dental caries
- Pain in the gum
- Swelling of gum
- Mild fever
- Palpable submandibular lymph nodes
- Swelling may be fluctuant.

MANAGEMENT**Drug treatment**

- Cap amoxicillin 500mg TDS for five to seven days OR
- If patient is allergic to penicillin, Cap doxycycline 100mg BD for five to seven days

PLUS

- Metronidazole 400mg TDS for five to seven days
- Analgesic – Antipyretic like ibuprofen 200 –400mg or paracetamol 500mg to relieve symptoms.
- Refer for incision and drainage of pus if there is fluctuant swelling
- Antiseptic mouth paints.

Advice:

- Regular toothbrushing twice daily after meals
- Reduction in intake of sugar
- Hot salt water mouth wash.

REFERRAL

- Every case of caries with periodontal abscess should be referred to hospital for further treatment.

3.5. ORAL ULCER

This is a primary or recurrent condition seen in the oral mucosa (lip, hard palate, soft palate, tongue, gingiva), and is characterised by painful superficial ulceration.

DIAGNOSTIC FEATURES

- Small indurated erythematous area in the oral mucosa which later on converts into an ulcer. It will usually heal by itself within one week. The main differential diagnosis is oral cancer.

Risk factor for oral cancer

- Age >30 years, tobacco use (smoking or non-smoker) betel nut chewing, paan parag, khaini, spicy food, areca nut consumption, alcohol use.

Red flags for risk of oral cancer, while examining oral cavity

- Patch of whitish or reddish discoloration of mucosa
- Non-healing ulcer lasting >2 weeks
- Oral hairy leucoplakia (large white patches that look thickened and irregular)
- Submucous fibrosis
- Visible mass
- Unexplained persistent bleeding from the mouth
- Unexplained loss of sensation in the mouth.

MANAGEMENT of simple mouth ulcers**Drug treatment**

- Gentian violet (0.5–1%) (NLEM) to be applied locally two to three times a day for four days.
- For pain: Ibuprofen 200–400mg or paracetamol 500–1,000mg can be given, as needed
- If there is an evidence of secondary infection (spreading swelling, redness, swollen lymph glands, fever), oral Amoxicillin – 500mg TDS for five days can be given.

Advice

- Health education: Rinse mouth with clean warm water twice a day, avoid smoking, avoid areca nut and alcohol, avoid chocolates, brush tooth with soft toothbrush.

REFERRAL

- Any red flags while examining oral cavity (as mentioned above)
- Severe gingivitis
- Aphthous ulcer with secondary infection not responding to the above treatment.

3.6. TOOTHACHE, TOOTH AND JAW TRAUMA

Pain in and around teeth is a common problem, particularly in those with poor oral hygiene, dental caries, any soft tissue lesion of the oral cavity or tooth trauma due to fall injury or road traffic accidents.

CAUSES

- Dental caries, pulpitis, trauma, erupting wisdom teeth, periodontal abscess, temporomandibular disorders, grinding teeth at night, trauma due to road traffic accidents, physical assaults and fall injury.

DIAGNOSTIC FEATURES

History and examination

- Identify location of pain, duration, any preceding trauma, any other features. Look for gum swelling, locate abscess if present, look for caries, assess base of mouth for tenderness and induration.

MANAGEMENT

Drug treatment

- Treat the underlying cause
- Analgesics for pain, antibiotics (amoxicillin and metronidazole) for periodontitis, pulpitis
- Apply clove oil in painful area.
- Refer for incision and drainage for periodontal abscess
- In trauma cases, replacing and preserving an avulsed tooth: An avulsed intact tooth that has come out of its socket can be replaced if brought to the BHCS facility within 15 to 20 minutes. Tooth can be placed in normal saliva of patient/NS/milk (cow's milk or buffalo milk); the root surface should not be touched with the hand. Fix the tooth in the socket, make patient bite the tooth with a gauze piece and refer patient to a higher centre
- Jaw fracture can be immobilised by bandage over jaw and referred to a higher centre.

Advice

- Maintain oral hygiene, avoid alcohol, smoking, rinse with water regularly, and brush teeth twice a day.

REFERRAL

- If associated with headache, fever, swelling and tenderness of floor of the mouth, facial nerve involvement
- After replacing an avulsed tooth in its socket, refer patient to a higher centre
- After jaw fracture is immobilised, refer to a higher centre.

3.7. DENTAL CARIES

Dental caries is a multifactorial microbial infectious disease characterized by demineralization of inorganic and destruction of the organic substance of the tooth.

CAUSES:

- Acidogenic theory- Decalcification of dentine and enamel with dissolution is obtained from starch and sugar fermentation by microorganisms which are mostly acidogenic.
- Proteolytic theory- In addition to acid production, plaque bacteria produce Proteolytic enzymes that destroys organic portion of tooth making it easier for microorganisms to invade enamel and dentine.
- Proteolysis-chelation theory: Bacterial attack on enamel is initiated by keratolytic microorganisms which results in formation of substance which may form soluble chelates with mineralized portion of teeth.

Cariogenic bacteria: *Streptococcus mutans* (most potent), *Streptococcus viridans* and other streptococcus species.

DIAGNOSTIC FEATURES

- Chalky white spot-on tooth.
- Formation of cavity detected by probe, dental floss or dental X-Ray.
- Increase sensitivity to tooth
- Toothache

MANAGEMENT

- Pain management- Tab Ibuprofen 400mg PO SOS
- Manage acute infection- Cap Amoxicillin 500mg PO TDS and Metronidazole 400mg PO TDS for 5-7 days
- Refer for further management of caries.

ADVICE

- Good oral hygiene, Avoid alcohol/smoking.
- Low consumption of sugar-rich foods or beverages.
- Brushing- use of topical Fluoride containing toothpaste 2-times a day.
- Rinse mouth with application of antiseptics such as chlorhexidine 0.2% mouthwash.

REFERRAL

- Any patient with dental caries should be referred.

4. SKIN AND SOFT TISSUE INFECTIONS**4.1. PEDICULOSIS (LICE)**

Lice (jumra) may inhabit the hair of the head, the body and the pubic region. They are small insects that may also hide in clothing (especially along the seams) and in the bedclothes; their eggs (likha) are white and stuck to hairs and so (unlike dandruff) are difficult to separate from the hair.

DIAGNOSTIC FEATURES

Itching: often there are raised itchy lumps where the louse has bitten. May involve other family members.

Examination:

Signs of scratching (excoriation). Lice may be seen in the hair and on the body; they are easiest to detect by combing onto a piece of white paper. On close examination, white eggs that are stuck onto hairs may be seen.

MANAGEMENT**Drug Treatment:**

- First-line treatment to cure lice: Permethrin
- Wash well at bedtime (after evening meal)
- If there are body lice, apply lotion over the whole body below chin
- Leave permethrin for 12 hours in the body.
- Wash after 12 hours, repeat procedure (reapply permethrin) after a week.

For itching:

- Tab Cetirizine 10mg PO OD (non-sedating) OR promethazine 25mg TDS.

Counselling:

- Comb the hair frequently; this is best done when the hair is wet and made slippery by applying shampoo or conditioner; repeat daily for several days
- Wash all clothes and bedclothes and dry them well in the sun; advise to re-attend if treatment fails (after 2-3 weeks).

REFERRAL

- If diagnosis is not clear, if no response to treatment or severe systemic infection.

4.2. SCABIES

Scabies is caused by tiny (invisible) mites that live in the patient's skin, but also in their clothes and in bedclothes. They spread easily between people who share a bed. Some people do not have any symptoms despite of being infected by mites.

DIAGNOSTIC FEATURES

- Very itchy skin rash; itching much worse at night
- Rash, especially on hands, wrists, feet, abdomen and genital region
- May involve other family members.
- Signs of scratching (excoriation)
- On close examination, mite burrows may be seen. These are small yellowish elongated marks about 3-4mm long and are especially visible on hands between the fingers.

MANAGEMENT**Drug treatment:**

- For itching: Cetirizine 10mg, one Tab OD for three to five days
- OR if cetirizine not available – Promethazine 25mg TDS
- First-line scabicial treatment is permethrin 5%; wash well at bedtime (after evening meal):
 - Apply lotion over whole body below chin, especially between fingers and toes
 - Remember to re-apply on hands and feet after washing
 - Wash after 12 hours, repeat procedure after a week.

Advice

- Treatment has to be given to all persons who share a bed with the patient, whether they have symptoms or not
- Wash all clothes and bedclothes and dry them well in the sun
- Change the mattress of the bed/sleeping place
- Advice that itching may persist for two to three weeks after treatment.

REFERRAL

- If diagnosis is not clear, if no response to treatment or severe systemic infection.

4.3. FUNGAL SKIN INFECTIONS

Itchy dry flaky rashes are often caused by fungal infection, and fungi also cause tinea capitis (scalp affected), onychomycosis (nails affected), intertrigo (infection of the skin folds underneath breasts or in genital area), ringworm (localised round-shaped skin infection), “nappy rash” (rash in genital and perianal area of babies), athlete’s foot and pityriasis (“dubi”).

Fungal infections are more likely in individuals with reduced immune capacity, e.g., malnourished children, people with DM/HIV/leukaemia; consider this in very widespread or recurring infections.

DIAGNOSTIC FEATURES

- Slowly spreading itching rash
- Often single or satellite lesions with central normal area and peripheral redness, thickness and scaling (“ringworm”)
- May be pustular or with large areas of red rash, or only thickening and scaling
- May cause dandruff and hair loss on scalp
- In scalp infections in children there are often plaques of thick scales that may become infected; hair of affected area is usually broken at a few millimetres in length
- Nails look thickened and deformed, are very brittle and break easily.
- Redness and infection between toes, or thickened, itching, cracked skin of soles of the feet

MANAGEMENT

Drug Treatment:

- Local treatment: Clotrimazole ointment or cream applied BD to affected area for two weeks.

Note: continue local treatment for at least two weeks, even if lesions have improved a lot.

Systemic treatment:

For bad nail and scalp infections. Note: do not use in pregnant women.

- Adults and children over 12 years: Fluconazole 150mg once weekly for four to eight weeks
- Also treat bacterial secondary infection, if present (see 4.4, 4.5 and 4.6).

Advice

- Fungal diseases are contagious (spread by touch and direct contact) so counsel about hygiene and keeping affected skin clean and dry; advise about importance of finishing treatment course, as fungal skin diseases have a tendency to recur.

REFERRAL

- If no improvement after two to three weeks of treatment, refer for further investigations (e.g. skin scraping and microscopy).

4.4. CELLULITIS

Cellulitis is a bacterial infection of the deeper skin layers, usually caused by *Streptococcus*, or sometimes *Staphylococcus*. The infection can spread and cause serious illness if not treated promptly.

DIAGNOSTIC FEATURES

- Redness, swelling and itching/pain of skin and soft tissues
- Often on legs, occasionally hands or face
- Often also fever/heat and obvious inflammation
- Area of redness/infection spreads from day to day.

Examination:

- Local signs of infection: redness, swelling, warmth, pain and loss of function
- Regional lymph nodes may be swollen and painful
- Lymphangitis may be seen: A red track from infected area on limb towards centre of body.

MANAGEMENT

Drug Treatment:

- If very high fever (systemic illness), or cellulitis of the face (near the eye), refer – IV antibiotics are needed. (If referral not possible, start ceftriaxone IV)
- Otherwise, give analgesia (ibuprofen or paracetamol) AND
- Give a five-to-seven-day course of an antibiotic:
 - Oral cloxacillin (or cloxacillin and amoxicillin combined) OR
 - In penicillin allergy – Doxycycline or cotrimoxazole
 - For dosages, see Chapter XIV, Section 2 (Dosage Charts).

Advice:

Ask about tetanus vaccine status; if not received in last 10 years, recommend immunisation.

Follow-up:

If any signs of systemic illness, review daily. After 48 hours of treatment, signs should have improved – if not, change antibiotic or consider referral.

REFERRAL

- For serious infections
- If systemic illness or cellulitis of the face
- If not improving within 48 hours, refer.

4.5. ABSCESSSES, BOILS, FURUNCULOSIS

Abscesses usually form at the site of a hair follicle, and are usually caused by bacterial infection with mainly staphylococci or streptococci, but can be caused by *E. coli*.

Small abscesses (“boils”) may heal with antibiotic treatment, but when the swelling is bigger than 2cm in diameter, they will not usually heal until the pus is drained.

DIAGNOSTIC FEATURES

- Boils usually appear in the buttock area, armpits, groin or breasts (especially in breastfeeding women)
- Initially small, painful, slightly red swelling or hardening of the soft tissue
- This becomes more and more painful and bigger over a few days
- Eventually, a yellowish “head” appears, and if not treated, the abscess will burst, discharge pus and heal. (Healing may take from a few days up to several weeks.)

On examination:

- Red area on skin with underlying visible or palpable swelling
- On palpation, feels as if there is fluid under the skin
- Very painful on palpation.

MANAGEMENT**Drug Treatment:**

If small (swelling less than 2cm in diameter), or no discernible fluid collection yet:

- Give antibiotics: Cloxacillin OR doxycycline (in adults) OR cotrimoxazole (in children) AND metronidazole, if near mouth or anus
- Often such small abscesses will spontaneously burst and drain pus – explain this to the patient.

If larger than 2cm, with palpable fluctuation or visible yellow shiny area on the skin surface, no signs of spontaneous bursting, and very painful:

- Perform INCISION and DRAINAGE.
- In cases of recurrent or multiple boils and abscesses (furunculosis), REFER for evaluation.

Advice**Advise on importance of personal hygiene to prevent recurrence:**

- Wash at least twice daily with soap and water
- Advise patient to re-attend promptly in case of recurrence, or if redness and pain does not subside within 48 hours.

REFERRAL

- Painless abscesses (may be TB or cancer)
- Big abscess (>5cm diameter), especially in buttock or anal area
- Multiple abscesses, or frequently recurring abscesses

4.6. IMPETIGO

A spreading, weeping, crusting honey-coloured rash. This is highly contagious (spread through touch) and hand washing after examining the patient is especially important. The cause is usually bacterial: Staphylococcus or sometimes Streptococcus.

DIAGNOSTIC FEATURES

- Itching red spots develop into vesicles that open and the yellow liquid inside forms “honey-coloured” crusts
- Sometimes fever and swelling of local lymph nodes
- Usually affects children under 12 years of age
- Blisters or sores are often around mouth and nose

MANAGEMENT

Drug Treatment:

- If only one or two small areas affected:
 - Mupirocin OR tetracycline ointment (NLEM) applied BD for seven days OR
 - Gentian violet solution applied daily
- If more than two areas or one large area (>3cm) affected:
 - Cloxacillin (or combination of ampicillin and cloxacillin) OR cotrimoxazole OR azithromycin.

Advice:

Advise on the importance of personal hygiene to prevent spread and recurrence:

- Wash at least twice daily with soap and water
- Advise not to let child sleep together with others until lesions have healed
- Advise on the importance of taking full course of treatment, even if lesions are much improved; otherwise, there is increased risk of recurrence.

Follow-up:

If no improvement after three days of treatment, consider changing to a different antibiotic.

REFERRAL

- Severe illness, or worsening during therapy, consider referral for admission.

PART FIVE

AYURVEDA AND ALTERNATIVE MEDICINE

आयुर्वेद तथा वैकल्पिक चिकित्सा विभाग

१. पूर्व पंचकर्म

पंचकर्म को पूव कर्मको रूपमा अभ्यंग (बाह्य स्नेहन) र स्वेदन कर्मलाई लिईएको छ,

अभ्यंग

अभ्यङ्गको परिभाषा र परिचय

अभ्यङ्ग = मालिस गर्नु = हातले अङ्गमा रगडेर गति गराउनु ।

अभ्यङ्गको सामान्य अर्थ शरीरमा स्नेह (घृत र तेल वा अन्य चिल्लो) ले मालिस गर्नु भन्ने हुन्छ ।

यो शरीरको बाहिरी भाग (त्वचा) मा गरिने भएकाले बाह्य स्नेहन कर्म हो ।

यसमा शरीरको कुनै भागमा वा सम्पूर्ण शरीरमा सुगन्धित र वातनाशक तेल, घिउ वा अन्य स्नेह (चिल्लो) द्रव्यलाई ऋतुअनुकूल (सुखोष्ण = मनतातो) मालिसका रूपमा (oil massage) प्रयोग गरिन्छ ।

अभ्यङ्ग सेवाको उद्देश्य :

आयुर्वेद स्वास्थ्य संस्थामा अभ्यङ्ग सञ्चालनको प्रमुख उद्देश्य सेवाग्राही नागरिकहरूको स्वास्थ्य रक्षा गर्नु , रोग निवारणका साथै रोगको पुनरावृत्ति हुनबाट बचाई समग्ररूपमा स्वस्थ राख्न सघाउने विभिन्न उपायहरूमध्ये एक अत्यन्त सरल व्यावहारिक र महत्वपूर्ण सेवा प्रदान गर्नु हो ।

अभ्यङ्गको महत्व :

अभ्यङ्ग स्वस्थवृत्तका निम्ति, रोगको उपचारका निम्ति र रोगको विशेष उपचारपछि पनि अपुनर्भव वा पुनर्स्थापनाका निम्ति पनि उपयोगी भएकाले यो शरीरलाई स्वस्थ राख्ने महत्वपूर्ण उपाय हो ।

कुनै रथ वा गाडीको चक्काको धुरामा चिल्लो, चिल्लो पदार्थ (गिदचष्वबलतक) लगाउँदा आपसमा रगडिन वा टुट्फुट हुनबाट जोगिएर बलियो र टिकाउ भएजस्तै अभ्यङ्ग (चिल्लोले मालिस) गर्नाले त्वचा, नसा, जोर्नी, मांसपेशी लगायतका शरीरका अङ्ग-अवयवहरू क्लेश सहन सक्ने र बलिया हुन्छन् ।

अभ्यङ्गबाट हुने फाइदा/लाभहरू

- जराहरः वृद्धावस्था विस्तारै आउँछ; धातुहरू पुष्ट र बलिया हुन्छन् ।
- श्रमहरः धेरै परिश्रम, व्यायाम आदि कारणले हुने शारीरिक थकाइ हटाउँछ ।
- कफवातनिरोधनः कफ र वात प्रकुपित हुनबाट रोक्छ; वातादि रोग नाश गर्छ ।
- दृष्टिप्रसादनः आँखाको दृष्टिशक्ति बढाउँछ ।
- पुष्टिकरः शरीर हृष्ट-पुष्ट, बलियो र धेरै वर्ष बाँच्ने हुन्छ । निद्रा राम्रो लाग्छ ।
- त्वचा स्निग्ध, सुन्दर, नरम र दृढ हुन्छ ।
- क्लेशसहत्वः शरीरको कष्ट एवं अभिघात (चोटपटक) सहने क्षमता बढ्छ ।

तेलहरू प्रायशः तोरीको तेल, एरण्ड तेल, तिलको तेल, बला तेल, महानारायण तेल, महाप्रसारिणी तेल, प्रसारिणी तेल, नरम तेल, दशमूल तेल, सैन्धवादि तेल, ताम्रचूडादि तेल आदि विभिन्न प्रकारका तेलहरूको प्रयोग गर्न सकिन्छ ।

अभ्यङ्गको निषेध: Contraindications

सामान्यतः निम्नलिखित व्यक्तिहरू अभ्यङ्ग गर्न अयोग्य हुन्छः

- सामदोष, कफ तथा कफप्रधान रोगबाट पीडित;
- संशोधन (वमन-विरेचन) गरेका, निरूहवस्ति दिएका;
- अजीर्ण, अग्निमान्द्य तथा आमविकारबाट पीडित;
- तरुणज्वर वा नवज्वरबाट पीडित;
- सन्तर्पणजन्य (प्रमेह, मेदोरोग आदि) रोगबाट पीडित; आदि ।

स्वेदन

सामान्य परिचयः

जुन प्रक्रियाद्वारा शरीरबाट स्वेद (पसिना) निकालिन्छ, त्यस कर्मलाई स्वेद वा स्वेदन कर्म भनिन्छ । जसले शरीरमा जकडाहट,भारिपन र चिसोपनालाई नाश गर्छ अर्थात् शरीर बाहिर पसिना आउनु, नै स्वेदन हो ।

स्वेदनको सर्वांग स्वेदन र नाडी स्वेद विधि ज्यादा प्रचलित छन्

विधि:

- नाडीस्वेदका लागि औषधि द्रव्य प्रायशः दशमूल/ पुनर्नवा/ गुर्जो/ तितेपाती/ बृहत पंचमूल/ अडीर/ सिमली/ सिस्नु आदिको आवश्यक प्रयोज्य अंग प्रयोग गर्न सकिन्छ ।
- प्रेशर कुकर वा स्वेदन यन्त्रमा जुन औषधी द्रव्यको वाफ बनाई सेक्ने हो सो राखी पकाईन्छ, र वाफ बनाइन्छ ।
- पाईपको एउटा छेउ प्रेशर कुकरसंग जोडिएको हुन्छ, र अर्को छेउ अलि वाक्को र साना-साना प्वालहरु हुन्छन् । जसबाट वाफ बाहिर निस्किन्छ, र तोकिएको अङ्गमा सेकाई गरिन्छ ।
- भोजनपछि तुरुन्त अथवा खाली पेटमा नाडीस्वेद गर्नु उपयुक्त हुँदैन ।
- स्वेदन गर्नुपर्ने अङ्गमा तेल लगाई आवश्यकता अनुसार मालिस गर्नु पर्दछ । बिस्तारै प्रेशर कुकरमा वाफ बनी सकेपछि पाईपको क्लोजर भल्भलाई खोली पाईपलाई रुमाल या तौलियाले समातेर वाफ दिनु पर्दछ ।
- एक अङ्गका लागि १० देखि २० मिनेटसम्म गर्न सकिन्छ,

प्रयोग

• एकांगवात	• शोथ (Swelling)	• सर्वाङ्गवात (Paraplegia)
• जानुशूल (Pain in knee)	• उरु वेदना (Pain in thigh)	• पक्षाघात (Paralysis)
• मन्याशूल (Neck pain)	• पृष्ठग्रह (Stiffness in back)	• अर्दित (Facial paralysis)
• आमवात (Rheumatoid arthritis)	• गृध्रसी (Sciatica)	• कटिशूल (low back pain)

निषेध

• रक्तपित्त (Haemorrhagic disorder)	• अतिसार (Diarrhoea)	• मधुमेह (DM)
• गुदभ्रंश (Rectal prolapse)	• योनिभ्रंश (Uterine prolapse)	• अण्डवृद्धि (Hydrocele)
• अजीर्ण (Indigestion)	• गर्भिणी (Pregnant)	• वातरक्त (Gout)

२. स्तनपायी आमाको लागि शतावरी चूर्ण वितरण

परिचय

आमाको दूध जीवनीय, शक्तिवर्धक, मांसवर्धक, वलवर्धक, बुद्धिको लागि हितकर अमृत समान छ। सबै बच्चाको लागि सात्म्य (अनुकूल) हुन्छ। रसादि सबै धातुलाई पोषण गर्छ। रोग विरुद्ध लड्ने प्रतिरोधात्मक शक्ति बढाउँछ।

सुत्केरी आमावाट पर्याप्त मात्रामा दुध उत्पादन हुन नसकी शिशुलाई आवश्यक मात्रामा पोषण नपुग्नु कुपोषणको प्रमुख कारण मध्ये एक हो सुत्केरी अवस्था अत्यन्त संवेदनशील अवस्था हो जुन बेला सुत्केरी आमाको तीव्र शारीरिक तथा मानसिक परिवर्तन हरु हुन्छन जसलाई सहज अनुकूलन गर्नुपर्ने हुन्छ।

शतावरी को वैज्ञानिक नाम ब्कउबचवनगक चवअभयकगक र नेपालीमा कुरिलो भनिन्छ। कुरिलोमा अत्यधिक मात्रामा पोषणतत्वहरु पाईन्छ। स्वास्थ्यवर्धक र शक्तिवर्धक रुपमा लोकप्रिय छ। कुरिलोको जरामा डाईस्याकराईड्स, स्टार्च र प्रोटीन र डि-ग्लुकोज पाईन्छ। यसमा सताभरिन, ट्यानिन, अल्कोलोईड्स स्यापोनिन पाईन्छ। जरालाई पाउडर बनाएर पानीमा मिसाई स्तनपायी महिलालाई खुवाएमा दूध बढाउन मद्दत गर्दछ।

उद्देश्य:

- आमा र बच्चाको स्वास्थ्य सुधार गर्ने तथा कुपोषणजन्य रोगवाट बचाउने
- मात्रीशिशु मृत्युदर घटाउने

विधि:

- ६ महिनासम्मको सुत्केरी आमालाई सतावरी चूर्ण वितरण गर्ने

मात्रा:

चूर्ण ३-६ ग्राम

स्वरस १०-२० मि.लि.

क्वाथ ५०-१०० मि.लि.

३. योग

परिचय:

व्यक्तिको जीवनलाई स्वस्थ, व्यवस्थित, सकृय र सार्थक तुल्याउन योगको महत्त्वपूर्ण भूमिका हुन्छ विशेषत योगको ८ अंग मध्ये आसन र प्राणायाम (व्यायाम पक्ष) ले शारीरिक र ध्यान र अन्यले मानसिक सन्तुलन कायम गरि सुव्यवस्थित जीवनशैलीमा फर्त समग्र जीवनको गुणात्मक व्यवस्थापन गर्न सहयोग गर्दछ योग विज्ञान निदानात्मक मात्र नभएर रक्षात्मक, संवर्धनात्मक र पुनर्स्थापनाक स्वस्थसहितको समग्र अवधारणा हो

आसान शारीरिक अभ्यासको यौगिक रुप हो जसमा शरीरको विभिन्न अंगप्रत्यंगहरु लाई नियमपूर्वक संचालन गरि निश्चित स्थितिमा अभ्यस्त गराईन्छ

प्राणायाम श्वास-प्रश्वासको नियमन गर्ने यौगिक अभ्यास हो जसवाट शरीर र मनको तादाम्यता स्थापित भई मानसिक वे गहरुको व्यवस्थापन गर्दछ

साथै ध्यानले अन्तर र बाह्य वातावरण प्रतिको सम्यक सजगता मार्फत समग्र मनसको व्यवस्थापन गर्दै सकारात्मक जीवन यापन गर्न प्रेरित गर्दछ

फाईदाहरु:

- पाचन अङ्गहरुको कार्यक्षमता वृद्धि
- स्वस्थ मुटु र सुध्रिण रक्तप्रणाली
- फोक्सोको कार्यक्षमता वृद्धि
- चुस्त, तन्दुरुस्त, लचिलो र सुगठित शरीर
- रोग प्रतिरोधक क्षमतामा वृद्धि
- खराब आचरण, मानसिक दुर्गुण एवं विकृत मनोवेगहरु हटाई मानसिक स्वच्छता
- मधुमेह, रक्तचापजन्य समस्याहरु, दम लगायत नसर्ने रोगहरुको न्यूनीकरण र व्यवस्थापन
- जीवनशैलीगत रोगहरु एवं समस्याहरुको व्यवस्थापन

अभ्यासहरु:

प्रकार	यौगिक अभ्यासहरु
स्वस्थ व्यक्तिको लागि	<ul style="list-style-type: none"> • सूक्ष्म व्यायाम वा चालन क्रियाहरु • सुर्यनमस्कार • उठेर गर्ने: ताडासन, वृक्षासन, पादहस्तासन, अर्ध चक्रासन, त्रिकोणासन • बसेर गर्ने: भद्रासन, वज्रासन, उष्ट्रासन, शशांकासन, वक्रासन • घोटो परेर गर्ने: मकरासन, भूजंगासन, सलभासन • उत्तानो परेर गर्ने: सेतुबंधासन, उत्तानपादासन, अर्धहलासन, पवनमुक्तासन, शवासन • प्राणायाम: अनुलोम-विलोम, भस्त्रिक, कपालभाती, भ्रामरी • ध्यान

रोग/समस्या अनुसार

मानसिक समस्याहरु	<ul style="list-style-type: none"> • सुर्यनमस्कार • शवासन, भूजंगासन, हलासन, धनुरासन • भ्रामरी, उज्जयी, भस्त्रिका
मधुमेह	<ul style="list-style-type: none"> • भूजंगासन, नौकासन, धनुरासन, सलभासन, मंडूकासन • नाडीशोधन, कपालभाती, भस्त्रिक
स्थौल्य	<ul style="list-style-type: none"> • सुर्यनमस्कार • उष्ट्रासन, शलकासन, अर्धकटिचक्रासन, वक्रासन, हलासन
उच्च रक्तचाप	<ul style="list-style-type: none"> • धनुरासन, शवासन • भ्रामरी, उज्जयी
दम	<ul style="list-style-type: none"> • वक्रासन, उष्ट्रासन, पादहस्तासन • प्राणायाम • नेती

HOMEOPATHIC MEDICINE

१. परिचय:

होमियोप्याथिक चिकित्सा डा. स्यामुयल हैनिम्यान नामक जर्मनका वैज्ञानिकले सन् १७९६ मा गर्नु भएको थियो । यस चिकित्सा प्रणालीमा विभिन्न स्रोतहरू जस्तै वनस्पती, जैविक, खनिज लगायतका वस्तुलाई एक विशेष पद्धतिद्वारा शक्तिकृत गरी अत्यन्त सूक्ष्म मात्रामा विरामीलाई उसको चरित्रगत जस्तै मानसिक, शाररिक र भावनात्मक आदि लक्षणको आधारमा औषधी सेवन गराई उपचार गरिने गरिन्छ, र विरामीलाई रोगको विरुद्धमा प्रति जैविक शक्तिमा वृद्धि गरी सम्बन्धित रोगबाट छुटकारा दिलाउने गरिन्छ । होमियोप्याथिक उपचारको सफलताको लागि रोगीको लक्षण र औषधिको लक्षणमा समानता हुनु आवश्यक छ ।

सिद्धान्त:

होमियोप्याथी, होमियो र प्याथिक दुई शब्दबाट बनेको हो । होमियोको अर्थ समान र प्याथिकको अर्थ विरामी हो । होमियो प्याथिको मुख्य सूत्र नै समः समं समयतिः similia similibus curentur or like cure likes भन्ने प्रकृतिक सिद्धान्तमा आधारित छ । यो चिकित्सा प्रणाली अत्यन्त सरल प्रभावकारी तथा नकारात्मक असर रहित छ । होमियोप्याथीमा प्रयोग हुने विभिन्न पदार्थहरूलाई स्वस्थ मानिसहरूको शरीरमा पार्ने प्रभावको परीक्षण गरी प्रयोगमा ल्याईएको छ । होमियोप्याथिक उपचार गर्दा औषधीको मात्रा न्यूनतम प्रयोग गर्नु पर्दछ, जुन मात्रा विरामीको आन्तरिक जीउने शक्तीलाई उत्प्रेरणा प्रदान गर्न सक्षम हुन्छ ।

होमियोप्याथिक चिकित्साको विशेषता:

- होमियोप्याथिक चिकित्सा प्रणाली प्रतिक्रियात्मक विकार रहित चिकित्सा पद्धति हो ।
- होमियोप्याथिक चिकित्सा प्रणाली रोगको नामलाई मात्रा ध्यान नदिई सो रोगको पीडित रोगीको सम्पूर्ण लक्षणलाई ध्यान दिई गरिने उपचार पद्धति हो ।
- होमियोप्याथिक चिकित्सा प्रणाली सस्तो, सरल तथा प्रभावकारी भएकाले नेपाल जस्तो गरिब तथा बिकासोन्मुख देशको लागि उपयुक्त छ ।
- होमियोप्याथीमा एउटै औषधीको प्रयोगले विरामीमा भएको थुप्रै रोगको लक्षणहरूलाई निको पार्ने क्षमता राख्ने हुँदा एक पटकमा एउटै औषधीको सेवन गर्ने गरिन्छ ।

2. Disease :

A) warts

Warts are a type of skin infection caused by the human papillomavirus (HPV). They are typically small, rough, hard growths that are similar in color to the rest of the skin

A various types of wart have been identified, varying in shape and site affected some of these include:

- Common wart (verruca vulgaris),
- Flat wart (verruca plana),
- Filiform or digitate wart,
- Genital wart (venereal wart, verruca acuminata)
- Periungual wart,
- Plantar wart (verruca plantaris),
- Mosaic wart.

Diagnosis is usually made on clinical examination.

Treatment and Advice.

Homeopathy can effectively treat all types of warts with high success rate. Treatment usually depends on the types of warts, their appearances, characteristics, types, locations and many of physical and individualizing symptoms. Leading remedies for warts with their indications are-

Thuja occidentalis: warty excrescences. Fig warts of new or old in origin

Dulcamara: large smooth fleshy warts on back of hand. Aggravation on cold damp weather becomes soft when washed with water.

Antim crude: Hard horny excrescences under the nails, near the nailbed on soles and fingers of foot.

Causticum: chronic warts near nail of fingers, mucocutaneous junction, may be bleeding.

Nitric acid: easily bleeding on washing, oozing old type of warts.

ADVICE: Avoid unnecessary contact, do not prick or cut the warts as it might spread the infection.

Treatment: Take 2 pills three times a day (TID) before meal.

B) Tonsillitis

Tonsillitis is inflammation of the tonsils, two oval-shaped pads of tissue at the back of the throat on either side. Signs and symptoms of tonsillitis include swollen tonsils, sore throat, difficulty swallowing and tender lymph nodes on the sides of the neck. Most cases of tonsillitis are caused by infection with a common virus, but bacterial infections with *Streptococcus pyogenes* (group A streptococcus), also may cause tonsillitis.

Diagnosis is based on a physical examination of throat. With positive throat culture on throat swab.

Clinical features

There are 3 types of tonsillitis: acute, chronic, and recurrent.

Possible symptoms of tonsillitis include:

- sore throat
- difficulty or pain while swallowing
- bad breath
- fever
- chills
- earaches
- stomachaches
- headaches
- a stiff neck
- jaw and neck tenderness from swollen lymph nodes
- tonsils that appear red and swollen
- tonsils that have white or yellow spots

Treatment and Advice

Tonsillitis can be effectively treated with Homeopathy. Homeopathy not only cures tonsillitis but also eradicates the chronic and recurrent tendencies.

Some of the indicated remedies of tonsillitis are:

Belladonna: Red, hot and painful tonsils, shining and swollen

Baryta carbonicum: chronic tonsillitis with abscess in tonsils, tingling pain, recurrent tendency.

Ferrum phosphoricum, Kalium muriaticum: for first and second stage of tonsillitis with fever, painful deglutition, pharyngitis.

Lachesis: Chronic tonsillitis with deep purple swelling on tonsils. Most effective in left sided tonsillitis.

ADVICE

Avoid cold food and drinks, avoid rich spicy food. Gargle with twice daily with Echinacea Q or Phytolacca Decandra Q Mother Tincture (10 drops in one cup of Luke warm water)

Treatment: Take 2 pills three times a day (TID) before meal.

C) Vitiligo

Vitiligo is a long-term skin condition characterized by patches of the skin losing their pigment. The patches of skin affected become white and usually have sharp margins. The exact cause of vitiligo is unknown. It is believed to be due to genetic susceptibility that is triggered by an environmental factor such that an autoimmune disease occurs.

An ultraviolet light can be used in the early phase of this disease for identification and to determine the effectiveness of treatment

Clinical features

The only sign of vitiligo is the presence of pale patchy areas of depigmented skin which tend to occur on the extremities. Some people may experience itching before a new patch occurs the patches are initially small, but often grow and change shape.

Treatment and Advice

Sepia: Chronic leucoderma with aggravation from cold exposure.

ASF (Arsenicum sulph flavum): Can be used in all form of vitiligo. 2 tab BID

HydrocotylQ: (5 drops with water with two times a day for child. 10 drops with half cup of water BID for adult.

Tuberculinum: Family history of vitiligo. One single dose in every 15 days.

Ammi visnaga Q (Mother Tincture) for external use on the affected parts. Apply locally and expose to morning sunlight for 5 minutes.

D) Acidity:

Acidity is a term used for a set of symptoms caused by excess production of acid by the gastric glands of the stomach. The stomach normally secretes hydrochloric acid which is required for the breakdown and digestion of food we eat. Acidity causes symptoms like dyspepsia, heartburn, gastric inflammation and ulcers in the stomach.

Clinical features

Acidity is generally a consequence of several external factors like eating habits, fat diets, stress, smoking and alcohol consumption, lack of physical activity, irregularity in eating pattern. The incidence of acidity is higher in countries where individuals eat more of non-vegetarian, oily and spicy foods. Certain medications like non steroidal anti-inflammatory drugs (NSAID's) also predisposes individuals to gastric acidity.

Our stomach produces gastric acids to aid digestion. But, their corrosive effects are neutralised by the production of natural bicarbonate and prostaglandins secreted in the mucous lining. When the production of these chemicals is interrupted then it leads to damaged stomach lining which causes acidity.

The common signs and symptoms that you might experience are -

1. Burning in the stomach
2. Burning in the throat
3. Restlessness
4. Belching
5. Nausea
6. Sour taste
7. Indigestion
8. Constipation

Treatment and Advice

Homeopathy can effectively treat and cure acidity and acid peptic disorders. Following are some of the medicines with indications.

NUX VOM:- There is loss of appetite, pain after eating. Nervous gastralgia. Acidity aggravates from eating food and drink. From spirituous liquors.

CARBO VEG:- Slow and imperfect digestion, weight in the stomach and fainting with all-gone sensation in the stomach not relieved by eating. There is flatulence in stomach or upper part of the abdomen.

CHINA:- Where there is flatulence in the whole of abdomen and the distension is painful, Only relieved momentarily by belching.

Robinia Pseudoacacia : Excessive acidity of stomach causes frontal headaches. Burning pain and acrid vomiting with constipation.

Treatment: Take 2 pills three times a day (TID) before meal.

Robinia Q Mother Tincture (10 drops in one cup of Luke warm water) BID, after meal.

E) Arthritis

Arthritis is the swelling and tenderness of one or more joints. The main symptoms of arthritis are joint pain and stiffness, which typically worsen with age. The most common types of arthritis are osteoarthritis and rheumatoid arthritis. Others includes Ankylosing spondylitis, Gout ,Psoriatic arthritis,Reactive arthritis.Rheumatoid arthritis,Septic arthritis .

Clinical features

The most common signs and symptoms of arthritis involve the joints. Depending on the type of arthritis, signs and symptoms may include:

- Pain
- Stiffness
- Swelling
- Redness
- Decreased range of motion,

Diagnosis is usually made by clinical examination supported with imaging test like X-ray and joint fluid aspiration study. Blood test for Rheumatoid factor, uric acid, ESR.

Treatment and Advice

Homeopathy can effectively treat and limit the degree disabilities in joint disorders. Some of the well known drugs for arthritis are:

Bryonia album: inflammatory rheumatism, pain aggravation from motion with thirst.

Rhus tox: Rheumatic pain and stiffness in fibres, tissues, joints, tendons amelioration from motion.

Causticum: chronic arthritis with contracture and stiffness of joints

BCT-19: For all types of joint problems. 4 tab two times a day after meal.

Treatment: Take 2 pills three times a day (TID) before meal.

F) SKIN ALLERGY

Irritation and allergic reactions can also cause itchy skin. Allergic contact dermatitis occurs when the skin comes into direct contact with an allergen. The result of the skin allergy is a red, itchy rash that can include small blisters or bumps. The rash arises whenever the skin comes into contact with the allergen, a substance that the immune system attacks. Often, there is a time delay between exposure to the allergen and when the rash occurs.

Touching clothing, pets, chemicals, soaps, and substances such as poison ivy or cosmetics can trigger allergic reactions. Food allergies can also cause the skin to it.

Clinical features

A skin rash is the primary symptom of an allergic skin reaction. The rash may start as an itching sensation, a raised bump, or redness and you might ultimately experience any combination of

- Rash
- Itching
- Redness
- Swelling
- Raised bumps
- Scaling or flaking of skin
- Cracked skin

Diagnosis is confirmed by clinical examination with evidence of any triggering factors.

Treatment and Advice

Homeopathic medicines can provide effective solution to a number of skin ailments including allergies. Some of the important medicines with their indications are listed below.

Arsenic album: Chronic suppressed eczema with dry skin, scaly, burning, itching amelioration by hot application.

Rhus tox: Red rashes, burning, stinging sensation with eruptions.

Petroleum: Dry cracked scaly eruptions aggravation in winter.

Graphites: skin allergy with oozing discharges which is sticky and itching aggravation in summer

Apis mellifica: burning stinging sensation amelioration by cold applications.

PART SIX

HEALTH PROMOTION

HEALTH PROMOTION

Health promotion is the process of enabling people to increase control over, and to improve, their health.

It covers a wide range of social and environmental interventions that are designed to benefit and protect individual people's health and quality of life by addressing and preventing the root causes of ill health, not just focusing on treatment and cure.

Principles of Health Promotion:

Empowerment – A way of working to enable people to gain greater control over decisions and actions affecting their health.

Participatory- Where people take an active part in decision making.

Holistic - Taking account of the separate influences on health and the interaction of these dimensions.

Equitable - Ensuring fairness of outcomes for service users.

Intersectoral - Working in partnership with other relevant agencies/organisations.

Sustainable - Ensuring that the outcomes of health promotion activities are sustainable

Approaches of health promotion:

Approach	Aim	Method
Bio-medical	Reduce morbidity and mortality from diseases.	Disease screening, diagnosis, immunization, palliative care, rehabilitation, etc.
Behavior change	Healthy behavior	Information, Education and Communication (IEC), Behavioral change communication (BCC).
Empowerment	Empowerment clients to identify and address their own needs	Community mobilization, participation action
Health Education	To increase knowledge and skills for healthy life	IEC, capacity building, Training
Social change	Addressing policies and improving environment to improve health	Lobbying, networking, policy planning and negotiations.
Setting based	Improve worker's productivity and improve health at work place	Health education, motivation, periodic health assessment, Work policies, healthy food.

Explanations on common methods of health promotion:

1. HEALTH EDUCATION:

Health education is the process by which individuals and group of people learn to promote healthy behavior by means of educational process.

Health Education can be delivered and adopted with the following models:

- Medical model-By sharing the facts and dissemination of information about health.
- Motivational model- Adoption of behavior change is not a simple act, it is a process of consisting several stages of awareness, motivation and action. The individual first goes to AWARENESS phase getting general information about the subjects, then the individual goes to MOTIVATION phase where he/she evaluates the condition and makes decision, then the individual goes to ACTION phase where he/she adopts the health behavior.
- Social interventional model- By looking at the adoption of different health behavior by the social environment.

Practice of health education:

- Audio-visual aids: Radio, tapes, TV, films, projections, posters, leaflets, exhibition, etc.
- Health communication: Direct one to one meeting, lectures, demonstration, group discussion, panel discussion, workshop, conference, seminars, role play, etc.
- Mass approach: TV, Radio, FM, Internet, Newspaper, Mailing, Health museums and exhibitions, etc.

What to educate?

People are most likely to remember and to act on advice if it is relevant to what is happening in their lives at that point in time. Examples:

- If a mother brings a baby with diarrhoea to see you then that consultation is a good time to offer health education about preventing diarrhoea
- The same topic might be right for a group education and discussion session if there have been several cases of acute diarrhoea in one village
- Sexual health would be a good topic for a few minutes of health education if a young woman comes in to ask about contraception. During ANC, counsel on danger signs in pregnancy, nutrition and PFP. If a woman comes for safe abortion counselling, discuss post-abortion FP
- In someone who attends with a chest infection/COPD, counsel about stopping smoking.
- It might be about the nutrition, hygiene, human biology, family health, disease prevention and control, mental health whenever feasible with the utilization of different means.

Some general principles on health education:

- Always think about your audience: for example, it is no good using a lot of written material if very few people can read. Pictures or drawings might work better
- Find out what they already know. People will not listen well if they already know what you are telling them
- Give information in small amounts at a time
- Use language that is simple and clear
- Use pictures and/or demonstrations if you can
- Check understanding frequently. Remember if you just say, 'Do you understand?' people will usually say, 'Yes,' whether they do or not, so ask specific questions
- If they do not understand then try something different. See if you can explain in simpler language, or give an example, or perhaps use pictures instead of words
- Try to be realistic: consider the circumstances they live in. Try and make suggestions that are possible in their circumstances.

Examples of Health education:

- Health education on celebration of breast-feeding week at District health office.
- Health education on COVID-19 vaccination program in the hospital.
- Health education condom distribution in a community on AIDS day.
- Health education on tobacco control for a group of smokers in a community.

2. INFORMATION, EDUCATION AND COMMUNICATION (IEC):

- An approach which attempts to change or reinforce a set of behavior in a target audience regarding specific problem in a predefined period of time.
- It is a multidisciplinary and client centered approach.
- It empowers the people to make decisions, modify behavior and change social conditions.
- Activities are based on needs assessment, educational principles and periodic evaluation using clear set of goals and objectives.
- It informs, motivates and help people to adopt and maintain healthy practices by using techniques to spread the knowledge on the disease prevention and health promotion.
- IEC materials are used to convey public health messaging in order to support the overarching behavior change strategy developed to respond public health problem.
- IEC materials include range of products like flyers, leaflets, brochures, TV adverts, social media posts, infographics, etc.

Examples of IEC materials for health promotion

- Information on hand washing through a leaflet during COVID-19 crisis.
- Information on COVID vaccine through a leaflet.
- Information on acute diarrhea and complication through a brochure.

3. BEHAVIORAL CHANGE COMMUNICATION (BCC):

- BCC is an interactive process with communities/individuals to develop positive behaviors, promote health using variety of communication channels.
- Major objectives of BCC are to define people's own problems and needs, to understand the problem status and available resources to support and to decide on the most appropriate action to promote healthy living.
- Steps of BCC:
 1. Awareness: Initially a person is unaware of a particular behavior may be harmful. So, first step is to make them aware of the behavior using mass media or group methods or interpersonal communication.
 2. Concerned: Information is given in such a way that people feel it and applies to them. The audience is concerned and are motivated to evaluate their own behavior.
 3. Knowledge/Skills: Concerned individuals acquire knowledge and may develop skills by talking to peers, social workers and health care providers. More interpersonal communication is needed at this stage.
 4. Motivated to change: Individuals might begin to think about need and importance of new health message and measures. Positive message from peer is particularly effective.
 5. Trial of change of behavior: Individuals decides and try new health behavior.
 6. Adoption: The result of trial of behavior change is evaluated and adopted if satisfied.

Example of BCC- Family Planning adoption

Step 1: Ask about family planning. If not aware, explain about family planning including benefits.

Step 2: Explain again about family planning and motivate to evaluate them to family planning.

Step 3: Explain all methods of family planning and sharing advantages and disadvantages of all methods.

Step 4: Motivate them for taking the best method they choose as per their choice and health person's explanation.

Step 5: Let them take one method of family planning.

Step 6: Counsel them to continue to adopt.

4. PUBLIC AWARENESS:

- Public awareness is the public's level of understanding about the importance and implications of a certain program or an activity.
- It is explaining issues and disseminating knowledge to people so that they can make their own decisions.
- Different ways to raise public awareness are through planned events, poster campaigns, websites, documentaries, mass media, newspapers, TV/radio, etc.
- Public awareness plays a key role in improving access to healthcare in general.
- It empowers communities, medical professionals and patients with appropriate tools, information and skills so that they can make high-quality, informed decisions on prevention, diagnosis, treatment, care, and support.

PART SEVEN

INVESTIGATIONS AND DRUGS

INVESTIGATIONS AND DRUGS IN BASIC HEALTH CARE FACILITIES

1. BASIC INVESTIGATIONS AT BHS FACILITIES (Not Covered by BHS)

Investigations	Interpretation (May differ in different lab that conduct the test)
Blood grouping and rhesus type	A, B, O, AB; rhesus +ve, rhesus-ve
RBS	60-120mg/dl
Complete blood count	
Hb	Male: 13-17g/dl, female: 12-16g/dl
Children: 13.5-17.5g/dl	
Total WBC count	4,000-10,000 cell/mm ³
Differential count	Adult: Neutrophil 50-75%, lymphocyte 20-40%, monocytes 4-8%, eosinophils 1-3%, basophils 0-1% Children: Neutrophil 30-55%, lymphocyte 35-60%, monocyte 4-8%, eosinophil 1-3%, basophil 0-1%
Urine routine test	No pus cells, no red blood cells, no casts
Stool routine test	No pus cells, red blood cells, no mucus
Urine ketone bodies	Not present
Dipstick for protein	Nil
Sputum AFB	Negative
VIA	Negative
Pregnancy test	Negative
VDRL	Non-reactive
rK-39 RDT	Negative
RDT for malaria	Negative
Dengue RDT	Negative
Microscopic for malaria	Negative

2. DRUG LIST AND DOSAGE CHARTS

List of BHS Drugs with their dosage form, caution, normal dose and indication which are available free of cost from Basic Hospitals, PHC, Basic Health Care service centre and Health Post								
S.N.	Drug name	Dosage form	Strength	Cautions	Normal dose	Indication	Basic Health service centre/ HP	Basic Hospital / PHC
1.	Acetylsalicylic acid (aspirin)	Tablet	75mg	Do not give to children under 12 Caution: Can cause gastric bleeding; take with food Pregnancy: Avoid high dose in 1 st and 3 rd trimester Breastfeeding – safe	For migraine: 600–900mg up to 4-hourly For angina prevention: 75–150mg/day; as emergency medicine in suspected heart attack: 300mg stat In suspected rheumatic fever: up to 40mg/kg BW TDS	Pain, migraine headache, angina (prevention)	√	√
2.	Adrenaline (epinephrine)	Injection	1mg in 1ml	Emergency medicine Pregnancy: Can use if indicated	Adult dose: 0.5ml (500mcg) IM In children: <6 yrs or <15kg 0.15ml (150mcg) IM, 6–12 yrs or 15–35kg: 0.3ml (300mcg) IM, >12 yrs or >35kg: 0.5ml (500mcg) IM Dose can repeated every 5 minutes	Allergic shock, anaphylaxis (patient collapsed)	√	√
3.	Albendazole	Chewable Tablets	400mg	Do not give to children under 1 year	Above 2 yrs: 400mg single dose	Worm infestation	√	√
		Suspension	200mg/ 5ml	Pregnancy: Safe after 16 weeks	Tapeworm: 400mg OD for seven consecutive days Children 1–2 yrs: 200mg single dose		√	√
4.	Dried aluminium hydroxide gel + Magnesium hydroxide	Tablet	250mg+ 250mg	Advise not to take together with other medicines (2hr before or after) Pregnancy: Can use if indicated	1 to 2 tablets to be chewed or 5–10ml after each meal or when required	Gastritis, heart burn	√	√

5.	Amitriptyline	Tablet	10mg	Avoid in known heart disease, epilepsy, constipation; can cause drowsiness Pregnancy: Only use if no alternative	Adults only: 5–75mg OD at night	Depression, neuropathic pain, migraine prophylaxis	✓	✓
			25mg					✓
6.	Amlodipine	Tablet	5mg	Can cause headaches and ankle oedema, sometimes purpuric rash on legs; not in pregnancy and breastfeeding Pregnancy: Only use if no alternative	Adults only: 2.5–10mg OD	HTN (also sometimes prescribed for angina pectoris and for pulmonary HTN)	✓	✓
7.	Amoxicillin	Oral Tablet	500mg	Check/ask if penicillin allergy Pregnancy: Safe	<2m or <4kg: 125mg (5ml Susp) or 1 DT 125mg BD 2–12m (4–10kg): 250mg (10ml Susp or 1 DT 250mg) BD 12m–3y (10–14kg): 500mg (2 Tab 250mg) BD 3–5y (14–20kg): 750mg (3 Tab 250mg) BD >20kg and adult: 1g (2 Tab 500mg) BD or 500mg TDS	Infection, especially respiratory	✓	✓
		Powder for oral Suspension	125mg					
		Dispersible Tablets	125mg					
			250mg					
8.	Ampicillin	Powder for IV/IM Injection	250mg vial	Check/ask if penicillin allergy Pregnancy: Safe	Dilute 500mg powder with 2.1ml distilled water to make 2.5ml Newborn up to 2 months: see IMNCI guide Child: 2–4m (4–6kg) 1.0ml TDS 4–12m (6–10kg): 2ml TDS 12m to 3y (10–14kg): 3ml TDS 3y to 5y (14–20kg) 4ml TDS Above 20kg and adult dose: 500–1,000mg TDS (double in severe infections)	Infection, especially respiratory; in severe infection within 2 weeks of childbirth: combine with gentamicin and metronidazole	✓	✓
			500mg vial					

9	Artemether + Lumefantrine (AL) (Artemisinin-based Combination Therapy – ACT)	Tablet	20mg+ 120mg	Not recommended in first trimester of pregnancy, or in children below 5kg	All ages and weight groups: 6 doses in total: day one two doses 8 hours apart, then 12-hourly Child: <15kg: 6 doses of 1 Tab 15.1–25kg: 6 doses of 2 Tab each 25.1–35kg: 6 doses of 3 Tab each >35kg and adult: 6 doses of 4 Tab each	Uncomplicated malaria Should be given in combination with a single dose of primaquine on day 0	√	√
10.	Artesunate	Injection	60mg ampoule	Only for severe malaria when oral treatment is not possible Pregnancy: Can be used	Weight <20kg: 3mg/kg BW IM or IV; patient Weight >20kg: 2.4mg/kg BW IM or IV	Severe malaria, when oral medication is not possible		√
11.	Atropine	Injection	0.6mg in 1 ml ampoule	Can cause acute glaucoma, tachycardia, agitation; emergency drug only Pregnancy: Only use if no alternative	In organophosphate or mushroom poisoning, with symptoms of bradycardia (<60/min), small pupils, low BP and sweating/salivating, start with 3–5 ampoules in slow IV Inj; repeat every 5–15 minutes – follow guideline on emergency treatment of poisoning	Organophosphate and other cholinergic poisoning (i.e. some mushrooms)	√	√
12.	Azithromycin	Tablets	250mg	Can cause stomach upset; give after meal Pregnancy: Safe	Trachoma or STI: 1g (2 Tab 500mg) single dose Respiratory, skin or ear infections, bacterial dysentery:	Trachoma, STIs (chlamydia), skin, ear, respiratory infections; acute bacterial dysentery; also typhoid fever, cholera, scrub typhus For most infections, a 3-day course is sufficient, as the drug has a long half-life	√	√
			500mg		Children from 3 months, 10mg/kg BW per day for 3 days; 5–10kg: 75mg daily; 10–15kg: 120mg daily; 15–25kg: 200mg daily; 25–35kg: 300mg daily; 35–45kg: 400mg daily Adult: 500mg daily for 3 days; 7–10 days in typhoid fever or scrub typhus		√	√
13.	BCG Vaccine	Injection	0.05ml	Don't give if allergic to it.	Intradermal Once 0.05ml after birth	Immunization to prevent from Tuberculosis	√	√

14.	Benzathine benzylpenicillin	Powder for Injection	600,000 IU or 1,200,000 IU	Skin test to rule out allergy required in any but newborn baby Pregnancy: Safe	Secondary prophylaxis of RHD: <30kg: 6 lakh IU, >30kg 12 lakh IU IM every 3 weeks	Secondary prophylaxis of RHD		✓
15.	Calamine	Lotion	155 w/v,30ml	Do not use on cracked or infected skin Pregnancy: Safe	Apply 2–3 times daily	Itching skin problems, chickenpox	✓	✓
16.	Calcium gluconate	Injection	1gm per 10ml	Do not give to patients with heart problems Pregnancy: Can use if no alternative	Give 1g (10ml) IV slowly over 3–5 minutes	In overdose of magnesium sulphate, if the patient is unconscious, the RR is less than 12/min, the urine output is less than 100ml/4 hours or the patella reflex is absent	✓ (Birthing centre)	✓
17.	Carbamazepine	Tablets	100mg	Use cautiously in cardiac or hepatic disease, glaucoma, pregnancy (esp. 1st trimester: risk of foetal carbamazepine syndrome); observe for allergic reactions Pregnancy: Only use if no alternative	Normal adult dose: 50–200mg 2–3 times a day Can be increased as per physician's advice (max 1,400mg daily) Children: Start dose 2.5mg/kg BW twice daily, max 40mg/kg BW/day	Seizure disorder Neuropathic pain	✓	✓
			200mg					
		Oral Liquid	100mg/ 5ml					
18.	Cefixime	Tablets	200mg	Can cause allergic reactions; possible cross-allergy with penicillin Pregnancy: Safe	For gonorrhoea: 400mg single dose Other infections: 6–10kg: 75mg daily 11–20kg: 100mg daily 20–30kg: 200mg daily >30kg (adult dose): 200–400mg daily for 5 days (10 days in typhoid fever)	Infections, particularly gonorrhoea Also used in kidney infections; also typhoid fever		✓

19.	Ceftriaxone	Dry powder for dilution injection	250mg/vial	May cause allergies; possible cross-allergy with penicillin Pregnancy: Safe	<2m: 2–3kg: 100mg OD; 3.1–4.5kg 150mg (IV infusion over 60 minutes) Child >2m (IM or slow IV): 3–5kg 250mg OD; 5.1–7kg: 350mg; 7.1–10kg: 500mg OD; 10.1–15kg: 750mg OD; 15–20kg: 1g OD; 20.1–30kg: 750mg BD; >30kg (adult dose) 1g IM/IV BD or 2g OD by IV infusion	Severe infection when oral medication is not appropriate – particularly typhoid fever, pneumonia		√
			500mg/vial					
			1gm/vial					
20.	Cetirizine	Tablet	10mg	May cause drowsiness Do not use in known liver disease Pregnancy: Use if no alternative	11–15kg 2.5mg OD; 15–30kg 5mg OD; >30kg 10mg OD	Allergies and itching skin rashes – less drowsiness than with pheniramine or promethazine	√	√
		syrup	5mg/5ml					
21.	Charcoal, activated	Powder in sachet	10mg	Can cause constipation: consider giving laxative Pregnancy: Can be used in pregnancy/lactation	After inducing vomiting, give 1g/kg BW, max 50g diluted in water to drink, repeat after 1hr – refer! See guidelines on emergency treatment of poisoning	Poisoning	√	√
22.	Chlorhexidine (CHX)	Solution	Solution, 0.2% oral 50ml	May cause skin allergies Pregnancy: Safe for external use	Dilute according to guidelines on packet; external use only Ointment: Neonatal care – apply to umbilical stump as directed	Skin disinfection (not on infected skin or open wounds), mouth wash; Ointment: Umbilical care (neonate)	√	√
		ointment	4%, 5gm					
23.	Chloroquine (CQ)	Tablet	150mg	Should not be given on empty stomach. Repeat the dose if there is vomiting within 30 minutes of giving CQ Observe for 48 hours, and refer if no improvement after this Can cause nausea and vomiting and visual disturbances; can also cause itching Pregnancy: In malaria, benefit outweighs risk – can be used	See clinical guideline for malaria for treatment regime. Total dose: <1yr: 1½ Tabs 1–4 yrs: 2½ Tabs 5–9 yrs: 5 Tabs 10–14 yrs: 7½ Tabs >14 yrs: 10 Tabs	For suspected Plasmodium vivax malaria (in low- to medium-risk malaria-affected areas, where there is not microscopy of RDT available and there is clinical suspicion of malaria.) In combination with primaquine for confirmed P. vivax malaria	√	√

24.	Ciprofloxacin	Tablets	250mg	Not recommended in children under 12 (if available, use azithromycin or erythromycin)	Adult: 500mg BD or TDS	Severe infection (urinary); alternative to azithromycin in bloody diarrhoea (dysentery), cholera, typhoid fever	✓	✓
			500mg					
		Eye/Ear Drops	0.3% w/v 5ml	Pregnancy and breastfeeding: Only use if no alternative	Dysentery or cholera in children (Nepal IMNCI guide): 2-4m: 62.5mg (¼ Tab) BD; 4-12m (6-10kg): 125mg BD; 12m-9y: 250mg BD; adolescents 30-40kg: 250mg TDS, adolescents >40kg: as adults	In eye or ear infections if other drugs have not helped	✓	✓
		Eye ointment	0.3%					
Injection	200mg/ 100ml	Can cause hearing problems if used as ear drops if there is perforation of ear drum; can cause irritation of eyes	Eye: one drop every 2 hours for 2 days, then 3 times daily for 3 days or use ointment twice daily; may use up to half-hourly		✓			
			Pregnancy: Probably safe in drops		Ear: 1-2 drops TDS			
25.	Clotrimazole	Skin Cream	1%,25gm	For skin treatment: Make sure lesion is responding – if not, reconsider diagnosis (leprosy or cancer?)	Fungal or candidal skin infections: Apply cream BD for 2 weeks at least	Fungal skin infections: athlete's foot, "ringworm", "nappy rash"	✓	✓
		Vaginal Tablets	100mg					
		Mouth paint	1%w/v	Pregnancy: Safe Consider alternative diagnosis Pregnancy: Safe in lower doses Consider alternative diagnosis; in older children or adults with mouth candida: HIV, cancer, DM Pregnancy: Probably safe	Vaginal thrush: insert two 100mg Tabs into vagina at night for 3 consecutive nights, or one 500mg Tab once 10-20 drops applied gently inside mouth, preferably with cotton bud, TDS or QDS, until cleared. Cover all lesions in mouth	Vaginal candida infection (thrush) Oral thrush, especially in small children		
26.	Clove oil	Liquid	5ml	Don't use for child below 2yrs	Small amount on tooth cavity	Pain reliver	✓	✓

27.	Cloxacillin	Capsules	250mg	Check for penicillin allergy Pregnancy: Safe	3–6kg: 100mg (4ml Syr) QDS 7–10kg: 125mg (5ml Syr) QDS 11–15kg: 162,5mg (6.5ml Syr) QDS 16–20kg: 187,5mg (7,5ml Syr) QDS 21–30kg: 250mg (1 Cap) QDS >30kg and adult: 500mg (1 Cap) QDS	Infections, especially skin (impetigo, cellulitis)	√	√
		Powder for oral liquid	500mg					
28.	Combined Oral Contraceptive (COC)	Tablets	One pack contains 21 pills, containing 150 mcg LNG and 30mcg ethinyl estradiol and 7 pills containing iron	Contraindications: Migraine with aura, breast cancer, breastfeeding, 6 weeks post partum; thromboembolism, HTN, breast cancer; hepatitis or liver tumours Caution: Smoker >35 years, obesity, breastfeeding, use of anticonvulsants or anti-TB drugs	Start within 5 days of first day of period, or any day if definitely not pregnant; continue without break (including iron pills) Use as EC: Take 4 pills as soon as possible after unprotected sex; repeat 4 tablets after 12 hours	Contraception; can also be used for irregular bleeding associated with other contraceptives, or for primary dysmenorrhoea	√	√
29.	Cotrimoxazole (SMX and TMP)	Tablets	400mg+ 80mg	Check for allergies, avoid in pregnancy	Adult dose: 800 + 160mg BD Child: Below 6m: 100 + 20mg (2.5ml Syr) BD 6m–5y: 200 + 40mg (5ml Syr) BD 16–20kg: 300 + 60mg (7.5ml Syr) BD 21–30kg: 400 + 80mg (1 Tab) BD >30kg: adult dose (Prophylaxis in HIV infection: once daily)	Infection, especially respiratory and urinary tract, also skin infections, diarrhoea in HIV, bacterial dysentery	√	√
			800mg+ 160mg	Pregnancy: Only use if no alternative				
		Syrup	200mg+ 40mg/ 5ml, 50ml					
30.	Dapsone, clofazimine, Rifampicin (MDT Combi Pack)	Tablet	MB adult-blister pack, MB Child blister Pack (A/c to DOTS Program)	Can cause severe reactions (headache, nausea, skin rash) Pregnancy: May be used under specialist supervision	See dosing schedule in Chapter IX, Section 5 Leprosy	Treatment of leprosy (also used by dermatologists for a number of other skin diseases)	√	√

31.	Dexamethasone	Injection	4mg in 1 ml vial	Only for use in emergency: severe acute asthma or Acute Mountain Sickness (AMS), severe allergic reaction (with breathing problems or collapse) Pregnancy: Safe	Give 8mg IM once, then continue with oral course Or 0.5mg/kg BW (max 8mg) IV then continue with oral course	Acute asthma, AMS, allergy Also used in bowel obstruction (palliative care)		√
32.	Dextrose (glucose)	Infusion	5% -500ml	Only give IV in situations where oral hydration is not possible: Emergency situations (hypoglycaemia, blood loss, shock), or severe dehydration with vomiting Pregnancy: Safe	Hypoglycaemia: 20–50ml bolus of 50% solution, or 250ml of 10% solution (child: 2–5ml/kg BW of 10% solution)	hypoglycaemia		√
		Solution	25% - 50ml	Caution in children or elderly people or patients with known heart problems! Pregnancy: Safe			√ (Birthing Centre)	√
33.	Diazepam	Injection	2ml amp (5mg/ml)	Only in emergencies! May cause patient to stop breathing! Pregnancy: Can use if no alternative; consider also giving glucose IV	In epileptic seizure give 5–10mg (½–1 ampoules) slowly IV, or PR; assess 15min and repeat if necessary Children: 1mg per year of age or 0.2mg/kg BW IV or PR: 2–11m (3–8kg): 0.5mg = 0.1ml; 12–23m (6–10kg): 1mg = 0.2ml; 24–35m (8–12kg): 2mg = 0.4ml; 36–47m (10–15)kg: 3mg = 0.6ml, 48–60m (14–20kg): 4mg = 0.8ml; 5–12y (20–40kg): 5mg = 1ml (Draw up doses in 1ml syringe and dilute to 1–2ml) Use 2–5mg 2–3 times daily, according to response; no more than one week	Generalised seizures, eclampsia Acute anxiety, severe back pain (combine with analgesia), alcohol withdrawal	√	√
		Tablet	5mg	Do not use for more than one week – causes dependence! Also causes drowsiness Do not use in children Pregnancy: Can use if no alternative				

34.	Diclofenac sodium	Injection	3ml ampoule (25mg/ml)	Do NOT use routinely – only in acute, severe pain; do not use in children under the age of 6 years	75mg IM, follow with diclofenac or ibuprofen orally (Children above 6 years: 20–30kg: 25mg (1ml) IM; 30–40kg: 37.5mg (1.5ml) IM; 40kg: 50mg (2ml) IM) Oral: 50mg TDS, short-term)	Acute pain, e.g. renal colic, severe back pain, injuries, if paracetamol does not work or patient cannot take tablets	✓	✓
		Tablet	50mg	May cause gastric bleeding, may cause worsening of asthma, nephrotoxicity Pregnancy: Do not use				
35.	Doxycycline	Capsule	100mg	Can cause stomach upset and skin rash; do not use in under 12 yrs Pregnancy: Do not use	100–200mg daily, in one or two doses, 5–7 days In severe acne: 100mg daily for 6–8 weeks	Infection, especially respiratory and genital; scrub typhus; also severe acne	✓	✓
36.	Ferrous sulphate and folic acid	Tablet	60mg elemental iron plus 400mcg folic acid	Advise to take with fruit or just water; not with tea or milk as this reduces absorption	Pregnant woman: One daily	Anaemia prevention in pregnancy	✓	✓
37.	FIPV Vaccine	Injection	0.1ml	Consult with physician before administration if child have any allergic reaction	For child: 1 dose at 6th and 1 dose at 14th week after birth intradermally (ID)	Immunization to prevent polio	✓	✓
38.	Fluconazole	Capsule	150mg	Can cause liver damage Avoid in children Pregnancy: Do not use unless no alternative	Vaginal thrush: single dose of 150mg Oral candidiasis, fungal nail, skin or scalp infection: 50mg daily (or 150mg twice a week) for 2–6 weeks	Vaginal thrush, oral candidiasis, fungal infection of skin, nails or scalp	✓	✓
39.	Fluoxetine	Capsule	20mg	Avoid in heart disease and epilepsy Pregnancy: cat C - Better to avoid during first trimester and needs doctor's advice.	Adult only: 10–20mg daily as single dose	<u>Needs doctor's prescription</u> Depression	✓	✓

40.	Folic acid	Tablets	5mg	Pregnancy: Recommended	1 Tab daily for first 12 weeks of pregnancy. In malnutrition – 5mg daily for 2 weeks	Prophylaxis in early pregnancy, particularly for women who are taking antiepileptic drugs; malnutrition	✓	✓
41.	Furosemide	Tablet	40mg	Start in low dose whenever possible, do not give high dose for long time without referring Do not use in children, refer for doctor's advice Pregnancy: Only use if no alternative	High BP: Try ½ Tab OD for 2 weeks Severe oedema: 40–80mg OD or BD (8am morning and 2pm afternoon) for one to two days, then re-assess In acute heart failure (on doctor's advice only) 10–20mg slow IV	Heart failure, water retention (swelling of hands and feet, difficulty breathing) when referral is not possible (see Chp X, Section 5, Section 8B)	✓	✓
42.	Gentamicin	Injection	(40mg/ml)/2ml	Emergency medicine; Do not use if very low urine output Pregnancy: Avoid use in pregnancy; can use if no alternative	Emergency treatment before referral: Adult: 3–5mg/kg BW (120–160mg) IM or slow IV Inj Neonate: <2.5kg: 10mg (0.25ml) daily; >2.5kg 15mg (0.375ml) daily Child: 4–6kg: 40mg (1ml); 6–10kg: 60mg (1.5ml); 10–14kg: 80mg (2ml); 14–20kg: 120mg (3ml) If referral impossible, repeat every 24 hours	Puerperal sepsis (severe fever within 1 week after childbirth) together with ampicillin and metronidazole Neonatal sepsis, severe pneumonia, suspected meningitis in addition to penicillin/ampicillin	✓ (IMNCI)	✓
43.	Gentian Violet	Aqueous solution	1%	Pregnancy: Can be used	Apply daily to affected area	Skin infections, small injuries, small burns wounds	✓	✓
44.	Glimepiride	Tablet	1mg 2mg	Do not use in severe impairment of kidney, liver Patients (especially if driving vehicles) should be warned for risk of hypoglycaemia Avoid use in pregnancy	Initially 1mg OD, increase 1mg every 1–2 weeks, maximum dose 4mg/day Only for refill after doctor's prescription	DM Type 2, if diet and metformin alone are not sufficient	✓	✓

45.	HPV Vaccine	Injection	0.5ml	Individuals who develop symptoms indicative of Hypersensitivity first dose shouldn't receive additional dose	See related chapter above	Immunization to prevent HPV infection	✓	✓
46.	HRZE	Tablet	Combination medication: H - INH, R - Rifampicin, Z - Pyrazinamide, E - Ethambutol	Pregnancy: Refer for advice	Refer to treatment schedules in Chapter IX, Section 2 on TB	TB treatment (primary infection, non-drug-resistant)	✓	✓
47.	Hydrocortisone	Powder for Injection	100mg in vial	Do not use for long periods Pregnancy: Safe	For use in emergencies: Anaphylaxis, severe asthma/COPD: 100–200mg slow IV	Severe asthma/ COP, allergies/ anaphylaxis		✓
48.	Hyoscine butylbromide	Injection	20mg/ml	Overdose caused by dry mouth and high HR Pregnancy: Only use if no alternative	Inj 20mg IV/IM up to TDS Tab 10mg 3–4 times/day Children >2 years: 0.3mg/kg BW	Nausea, crampy pain (especially renal colic, GI pain)		✓
		Tablet	10mg				✓	✓
49.	Ibuprofen	Tablet	200mg	May cause gastric bleeding, avoid if patient has asthma, (unless has taken ibuprofen before, with no bad effects) Avoid long term use Pregnancy: Do not use unless no alternative	Child: (if Syr not available, Tab may be ground and given in water) 3–6kg: 30mg (1.5ml Syr) TDS 7–10kg: 50mg (2.5ml Syr) TDS 11–20kg: 100mg (5ml Syr) TDS 21–30kg: 200mg (10ml Syr or 1 Tab 200mg) TDS Adult: 200–400mg TDS	Pain, especially joint or back pain Fever in children, if not controlled by paracetamol	✓	✓
			400mg					
		Syrup	100mg/5ml					
50.	Japanese Encephalitis	Injection	0.5ml	Consult with physician before administration if child have any allergic reaction	Child: once 0.5ml subcutaneously after 12 months of birth.	Immunization against Japanese Encephalitis	✓	✓

51.	Levonorgestrel (LNG)	Implant	Implant (2 rods, 75mg each)	<p>May cause irregular bleeding or amenorrhoea; rarely skin or mood effects</p> <p>Tablets can cause vomiting Next period may be delayed or early</p> <p>Pregnancy: Contraindicated (but probably no serious effects if given by mistake)</p>	<p>Contraception: For insertion by trained provider; effective up to 5 years</p> <p>Tablets: Emergency contraception. Give 1.5mg as single dose within 72 hours of sexual intercourse</p>	<p>Contraception; for insertion by trained provider</p> <p>Tab: EC within 72 hours of intercourse</p>	✓	✓
52.	Lignocaine	Injection	2% in vial	<p>Do not give more than maximum dose</p> <p>Pregnancy: Safe for local anaesthesia</p>	<p>Local anaesthesia, for Inj or local application; maximum dose for Inj in adults is 10ml of 2% solution by Inj (child 0.2ml/kg BW for 2% solution) or 20ml of 1% solution (child 0.4ml/kg BW of 1% solution)</p>	<p>Local anaesthesia for suturing</p>	✓	✓
53.	Lignocaine with adrenaline 1:10,000	Injection	2% plus Adrenalin 1:10,000	<p>NEVER use for anaesthesia on fingers or toes; max adult dose 6ml</p> <p>Pregnancy: Safe</p>	<p>Local (dental) anaesthesia as per protocol</p>	<p>Generally ONLY for local anaesthesia for tooth extraction</p>		✓
54.	Losartan	Tablets	25mg 50mg	<p>Consult with physician if severe or continuing nausea, vomiting or diarrhea that doesn't stop</p>	<p>Adult: 1 tab daily. Treatment should be initiated with lower dose & dosage may be gradually increased till max response is observed.</p>	<p>Mild to moderate Hypertension</p>	✓	✓
55.	Magnesium sulphate	Injection	500mg in 2 ml ampoule	<p>Do not give if the patient is unconscious, the RR is less than 15/min, the urine output is less than 100ml/4 hours or the patella reflex is absent</p> <p>Pregnancy: Safe to use in pre-eclampsia/eclampsia</p>	<p>Start dose in eclampsia or severe pre-eclampsia: 4g IV (4 ampoules diluted to 20ml) over 5 minutes; then 5g IM in each gluteal muscle with 1ml of 2% lignocaine</p> <p>Maintenance dose: 5g IM (in gluteal muscle) every 4 hours for 24 hours in total, needs close monitoring</p> <p>(See Chp VII, Section 6B Pre-eclampsia and Eclampsia)</p>	<p>Pre-eclampsia/eclampsia</p> <p>continue treatment until 24 hours after birth of baby or after last seizure</p>	✓ (Birthing Centre only)	✓
56.	Measles- Rubella Vaccine	Injection	0.5ml	<p>Consult with physician before administration if child have any allergic reaction</p>	<p>Child : 0.5ml (SC) at 9th and 15th month after birth</p>	<p>Immunization against Measles Rubella</p>	✓	✓

57.	Medroxyprogesterone	Injection	150mg/ml in 1 ml vial	<p>Contraindication: Breast cancer</p> <p>Caution: HTN, breastfeeding within 6 weeks of birth, DVT, arteriosclerosis, unexplained vaginal bleeding</p> <p>Pregnancy: Do not use</p>	Contraception: Inject 150mg deep IM every 3 months (every 12–13 weeks)	Contraception: Deep IM Tab: DUM short-term treatment	✓	✓
58.	Metformin	Tablets	500mg	<p>Use with caution in patients with liver or kidney disease; can cause diarrhoea</p> <p>Pregnancy: Safe to use</p>	Start dose 500mg BD can be increased to 1,000mg BD	DM Type 2 (also sometimes used to treat polycystic ovary syndrome)	✓	✓
			1000mg					
59.	Methyldopa	Tablets	250mg	<p>Use with caution in liver disease and in depression</p> <p>Pregnancy: Safe to use</p>	250mg 3 times a day, increased gradually at intervals of at least 2 days, max 2g/day	HTN in pregnancy or pre-eclampsia		✓
60.	Metoclopramide	Tablet	10mg	<p>Avoid in pregnant or breastfeeding mothers</p> <p>Do not use in normal vomiting in children</p> <p>Pregnancy: Safe</p>	<p>Adult: 10mg TDS</p> <p>Children: 15–25kg, 2.5mg TDS; 26–50kg, 5mg TDS</p> <p>Adult: <60kg: 100–150mcg/kg BW up to three times/day IM or slow IV; >60kg: 10mg up to TDS, IM or slow IV</p>	Severe nausea and vomiting	✓	✓
		Solution	5mg/ml					
		Injection	5mg/ml in 2 ml ampoule					
61.	Metronidazole	Tablets	200mg	<p>Advise patient not to take ANY alcohol with this!</p> <p>Avoid high doses (more than 400mg) in pregnant women</p> <p>Pregnancy: Safe in lower doses – do not use high-dose single dose regime</p>	<p>Severe infection: 500mg IV TDS</p> <p>Amoebic dysentery:</p> <p>3–6kg: 80mg (2ml solution) TDS</p> <p>7–10kg: 120mg (3ml solution) TDS</p> <p>11–15kg: 200mg (5ml) TDS</p> <p>16–20kg: 280mg (7ml) TDS</p> <p>21–30kg: 400mg (1 Tab)</p> <p>Adult 400 TDS for 5–7 (-10) days</p> <p>Bacterial vaginosis (vaginal discharge): 400mg TDS for 5 days OR 2,000mg stat</p>	Anaerobic Infections, especially genital, oral, postpartum amoebic dysentery, treatment in puerperal sepsis	✓	✓
			400mg					
		Oral Liquid	200mg/ml					
		Injection	500mg/ 100ml					✓

62.	Mifepristone	tablet	200mg Combipack (1 tab mifepristone-200mg and 1 tab misoprostol is 200 mcg)	Use with caution in haemorrhagic disorders, asthma, prosthetic heart valves Monitor BP and pulse for 3 hours after the intake Pregnancy: Do not use (except in indication for 1 st trimester abortion)	200mg one dose 36-48 hours before pregnancy termination	Medical termination of pregnancy along with misoprostol in licensed institutions Labour induction in foetal death	√	√
63.	Misoprostol	Tablets	200mcg	NEVER to be used in pregnant women after 1 st trimester Pregnancy: Do not use	Prevention of PPH (if oxytocin not available): 3 Tabs (600mcg) within 1 minute of delivery of baby Treatment of PPH: 4 Tabs (800mcg) stat (sublingual) Pregnancy termination: 800mcg 24-48 hours after mifepristone	To prevent PPH, in enrolled districts, as per protocol; for medical induced 1 st trimester abortion in licensed institutions Low dose: Labour induction in hospital	√	√
64.	Neomycin	Ointment	15gm	For external use only. Prolong use may result in overgrowth of non susceptible organism including fungi	Adult : apply thrice tropically	Prophylaxis superficial skin infection	√	√
65.	Nifedipine	Tablet	10mg	Emergency medicine! Do not give as long-term treatment for high HTN Do not use in children Pregnancy: Use if no alternative	Pre-eclampsia: 5-10mg stat (can repeat half-hourly up to 30mg max total dose) then 10-20mg BD - refer! Extremely high BP in non-pregnant patients - 20mg PO stat before referral	High BP (pre-eclampsia), hypertensive crisis, or extremely high BP (>220/120)	√	√
66.	Nitrofurantion	Tablet	100mg	Should not use it have severe kidney disease, urination problem, or history of jaundice or liver problem cause by nitrofurantion. Don't take if patient is in last 2 to 4 weeks of pregnancy	For adult ; 100mg orally twice a day for 7 days for cystitis & oD 100mg at bedtime for cystitis prophylaxis.	For cystitis and cyatitis prophylaxis, UTI and other infection	√	√

67.	Normal Saline (NS) (0.9%)	Solution	Infusion solution, 500ml	Emergency medicine! Do NOT give IV infusion for general "weakness" Do NOT give if patient can be hydrated orally	In blood loss and shock: Give two bottles as quickly as possible, then assess further need; in dehydration give 1-2 bottles over half an hour (In children, give 15ml/kg BW as quickly as possible, then assess further need; rehydration needed, if possible, orally: 3-6kg: 350-700ml per day 7-10kg: 700-1,200ml per day 11-15kg: 1,200-1,500ml per day 16-20kg: 1,500-1,800ml per day 21-30kg: 1,800-2,000ml per day >30kg: ≥2,000ml per day)	Acute blood loss, dehydration	√	√
68.	OPV (Oral Polio Vaccine)	Oral	2drops	Consult with physician before administration if child have any allergic reaction	For child: 2drops at 6, 10 and 14 th week after birth.	Immunization to prevent from polio	√	√
69.	Oral Rehydration Salts (ORS)	Powder	WHO formula sachet/lts	Remember: In dehydrated children give first dose of ORS in the HP: quick rehydration is more important than using boiled water Pregnancy: Safe	Usually 1 glass after every liquid stool, ½ glass in small children; (see Chp 5 IMNCI)	Dehydration	√	√
70.	Oxygen	Inhalation	Medicinal Gas	Avoid high flow in COPD patient Pregnancy: Safe	2-4L/min depending in the condition	Acute attack of asthma, COPD patient requiring domiciliary oxygen, shock, pneumonia, other conditions with hypoxia	√	√

71.	Oxymetazoline	Nasal drops	0.025%, 10ml	Do not use in children below 6 years Avoid prolonged use Pregnancy: Do not use	2–3 drops in each nostril 1–3 times/day	Nasal congestion	√	√
			0.05% 10ml					
72.	Oxytocin	Injection	10 IU/ml	NEVER give IM before the baby is born! Can cause uterine rupture Pregnancy: Use only during labour in hospital	Normal delivery: 10 IU (2 ampoules) IM after delivery of baby's shoulders PPH: Repeat after 15min and add 20 IU into IV drip, also give methylergometrine if needed	Management of third stage, PPH	√ (Birthing Centre)	√
73.	Paracetamol	Injection	150mg/ml in 2 ml	Check dose, and avoid giving together with combination medicines that contain paracetamol; overdose causes liver damage Pregnancy: Safe	Adult dose: 500–1,000mg TDS or QDS; child dose TDS to QDS. <2m (<4kg): 60mg (2.5ml Syr) 2m to 3y or 4–14kg: 5ml Syr 6-hourly 3–5y (14–19kg): 188mg (7.5ml Syr) 20–25kg: 250mg (1 Tab 250mg) 25–30kg: 375mg (1½ Tab 250mg) In febrile convulsion: can give double dose stat	Fever, pain, febrile convulsion		√
		Tablet	500mg				√	√
		Syrup	125mg/ml				√	√
74.	PCV Vaccine (Pneumococcal conjugate vaccine)	Injection	0.5ml	Consult with physician before administration if child have any allergic reaction	For child: 0.5ml intramuscular, 3 doses at 6 th week, 10 th week and 9month after child birth.	Immunization to prevent from pneumonia	√	√
75.	Pentavalent vaccine (DPT, Hep B & Hemophilus influenza B)	Injection	0.5ml	Consult with physician before administration if child have any allergic reaction	For child; 0.5ml IM, 3 doses at 6 th , 10 th and 14 th week after birth.	To prevent from Deptheria, Pertussia, tetanus, hepatitis B & Haemophilus influnzae type-B	√	√

76.	Permethrin	Lotion	1%	Do not use on broken/infected skin, avoid contact with eyes Pregnancy: Safe for external use	Apply all over body (including face and scalp in small children) for scabies; on scalp after shower for lice. Wash off after 8–12 hours, repeat after 1 week	Scabies, lice	✓	✓
		Cream	5% w/v					
77.	Pheniramine	Injection	22.75mg/ml 2ml	Do not use Inj except in severe reactions, where tablets take too long to work Do not use in children under 12 years Pregnancy: Safe	Inj 1–2ml IM or slow IV	Allergic reactions	✓	✓
78.	Phenobarbital	Tablet	30mg	May be sedative in adults Use with caution in elderly, children Pregnancy: Do Not Start in pregnancy: Refer pregnant women who take this drug	Adults: Start dose 30mg BD, max 180mg daily Children: 1m–12 years: 1–1.5mg/kg BW BD; max dose: 6mg/kg BW/day	All forms of epilepsy		✓
		Injection	100mg/ml					
79.	Povidone iodine	Solution	5% w/v	May cause allergies; avoid applying to open wound Pregnancy: Safe to use externally	Apply OD or BD as required	Skin and wound disinfection, ointment for chronic wounds	✓	✓
80.	Pralidoxim sodium	Injection	500mg, 20ml	Consult if any allergic reaction	See above in part 2 chapter II 10	As antidote in poisoning cases	✓	✓
81.	Prednisolone	Tablets	5mg	Need to consultation and routine test if have to use for long time.	See chapter x (NCD Disease Asthma) for more detail	For management of Asthma	✓	✓
			10mg					
			20mg					
82.	Primaquine	Tablets	7.5mg	Do not give to children below the age of 1 year Can cause problems with blood formation (G6PD deficiency) Follow up patients at days 3, 7 and 14 Pregnancy: Do not use	In combination with CQ for P. vivax malaria give 0.25mg/kg BW for 14 days In combination with ACT as a single dose in P. falciparum malaria on day 0 (0.25mg/kg BW): <15kg: ½ Tab; 15–25kg: 1 Tab; 25–35kg 1.5 Tab; >35kg: 2 Tab (see National Protocol)	In combination with CQ or with ACT to treat plasmodium in the liver	✓	✓

83.	Pyridoxine	Tablets	10mg	No specific caution with oral therapy Pregnancy: Safe	10–50mg/day as per doctor's prescription	INH-induced neuropathy Pyridoxine deficiency	✓	✓
84.	Ranitidine	Tablets	150mg	Can cause problems with sexual function Pregnancy: Can be used	Adult: Usually 150mg BD for 14 days, Inj in emergency 50mg BD Children: 3–15kg do not give; 16–20kg: 37.5mg (¼ Tab) BD; 21–30kg: 75mg (½ Tab) BD	Gastritis, PUD	✓	✓
		Injection	25mg/ml in 2 ml ampoule					
85.	Ringer's Lactate (RL)	Injectable solution	500ml	Emergency medicine! Do NOT give IV infusion for general "weakness" Do NOT give if patient can be hydrated orally Pregnancy: Safe	In blood loss and shock: Give two bottles as quickly as possible, then assess further need; in dehydration give 1–2 bottles over half an hour (In children, give 15ml/kg BW as quickly as possible, then assess further need; rehydration needed, if possible, orally: 3–6kg: 350–700ml per day 7–10kg: 700–1,200ml per day 11–15kg: 1,200–1,500ml per day 16–20kg: 1,500–1,800ml per day 21–30kg: 1,800–2,000ml per day > 30kg: ≥2,000ml per day)	Acute blood loss, shock	✓	✓
86.	Risperidone	Tablets	1mg	Use with caution in dementia, CVD	1–2mg once or twice daily, maximum 10mg daily in total	Psychosis	✓	✓
			2mg	Pregnancy: Can use if no alternative				
87.	Rotavirus vaccine	Injection	0.5ml	-	0.5ml at 6 th & 10 th week after birth	Immunization	✓	✓

88.	Salbutamol	Solution	For nebulisation	If overused, can cause palpitations and trembling – but often not used correctly – check patient's technique! Pregnancy: Can use if no alternative Overuse causes fast heartbeat and trembling Does not work well in children under one year	Usual dose is two doses (one dose for children under 6) 3–4 times daily, when feeling out of breath; in acute attack, adult may take 5–10 doses at one time (child max 2–4 doses at one time!); in acute attack if nebulisation is available, give 2.5ml of nebuliser solution through nebuliser, repeat every 1–2 hours until better Usual adult dose 4mg TDS to QDS; Children 2–12m: 1mg TDS 1–6 years: 2mg TDS to QDS >6 years: Adult dose	Asthma, COPD	√	√
		Oral liquid	2mg/ml					
		MDI	100mcg					
89.	Silver sulfadiazine	Cream	0.2% w/v 15g	Pregnancy: Safe	Apply to dressings as required	Superficial wounds, especially burns (softens and disinfects skin)	√	√
90.	Tetanus diphtheria (TD) Booster Dose	Injection	0.5ml	Consult physician if any allergic reaction	In pregnancy 0.5ml IM	Immunization to prevent from Tetanus and Diphtheria	√	√
91.	Tetanus Toxoid (TT)	Injection	0.5ml	Consult physician if any allergic reaction	Adult dose : 0.5ml IM	Immunization to prevent from Tetanus toxoid	√	√
92.	Tetracycline	Eye ointment	1%	Do not use long term in children under 8 years	Preventive: Apply to both eyes immediately after birth (after cleaning with boiled water) Curative: Apply BD for 5 days	Eye infection, minor bacterial skin infections, prevention of infection in the newborn	√	√
93.	Tinidazole	Tablets	500mg	Avoid in early pregnancy and children <6 years	Amoebic dysentery: 1g BD for 3 days; child 15–30kg: 500mg BD for 3 days Bacterial vaginosis: 2g single dose Anaerobic wound infection: 2g stat, then 500mg BD for 5 days	Amoebic dysentery, bacterial vaginosis, anaerobic infection	√	√

94.	Sodium valporate	Tablet	200mg	Reduce dose in renal impairment, liver impairment <u>Pregnancy: Do not use</u>	Adult and 12-17 years: Start 200mg twice daily, increase by 500g weekly (on physician's advice), max dose 3,000mg daily Children: Start 5-10mg/kg BW BD, max 40mg/kg BW/day	Epilepsy	√	√
95.	Vitamin A	Capsule	200,000IU 50,000 IU	Dangerous in overdose (Keep safe from children) Pregnancy: Do not use	6 to 12m: ½ Cap (100,000 IU) >12m: 200,000 IU (1 Cap)	Vitamin A supplementation, treatment of measles and malnutrition	√	√
96.	Vitamin B complex	Tablet	Therapeutic dose a/c to DDA	Consult physician, if allergic to any of its ingredient.	For adult : Once daily	To treat or prevent vitamin deficiency due to poor diet, alcoholism, during pregnancy.	√	√
97.	Vitamin K1	Injection	10mg/ml 1ml	Do not give IM dose if patient is bleeding (only in Newborn) Can use if no alternative	1mg IM as a single dose within 1 28 days of life; Very low weight infant (<1,000g): 0.5ml IM	Prophylaxis in haemorrhagic disorder of neonate	√	√
98.	Zinc sulphate	Dispersible Tablets	10mg (IMNCI) 20mg (IMNCI)	May cause vomiting – watch for 30 minutes, if vomiting occurs, repeat the dose; may be given in two divided doses Pregnancy: Safe	2-6 months: 10mg daily for 10 days 6 months-5 years: 20mg daily for 10 days Tablets can be chewed or dissolved in ORS, water or milk	As supplement in the treatment of pneumonia, diarrhoea, measles or malnutrition	√	√

MEDICAL AND SURGICAL SUPPORTIVE DEVICES				AVAILABLE CENTERS	
S.N	Name of Product	Pack	Size	Basic Health service centre / Health Post	Basic Hospital / PHC
1	Absorbent Cotton	Roll	Net 400g	v	v
2	Adhesive Tape	rolls	4"	v	v
3	Bandage	Than	18m*90cm	v	v
4	Catgut	Pkt	catgut 2.0	v	v
5	Chlorine Powder	Pkt	200g/shachet	v	v
6	Condom (Male)	pkt	-	v	v
7	Disposable syring	Pcs	3ml,5ml	v	v
8	Gauze	Than	18m*90cm	v	v
9	I and D set	pkt	-	v	v
10	IV cannula	Pcs	18/20/24 gaz	v	v
11	Iv Set	Pcs	Different Size	v	v
12	Phenol	Bottles	500ml	v	v
13	Rectified Spirit	Bottle	500ml	v	v
14	Rubber Catheter	Pcs	Different Size	v	v
15	Silk	pkt	silk 2.0	v	v
16	surgical Blade	Pcs	Different Size	v	v
17	SurgicalGloves (Disposal)	Pairs	6.5/7	v	v
18	Suture Set	Pkt	-	v	v
	Total			18	18

Note: Suture set contains straight artery forceps, curve artery forceps, sponge holding forceps, tooth forceps, needle holder, bowel 100ml and eye towel.

I & D set includes artery forceps, scalpel, bowel 100ml, sponge holding forceps and eye towel.

3. ADVERSE DRUG REACTIONS (ADRs), PREVENTION AND ADR REPORTING FORM

ADRs are unwanted or unintended effects of a medicine. The majority are predictable and often preventable (Type I): for example, hypoglycaemia can be prevented by an antidiabetic drug. A few less common ADRs, such as allergy and anaphylaxis by penicillin, are not predictable and preventable (Type II). Any suspicion of such an occurrence of ADR should be reported to the Department of Drug Administration (DDA).

ADR occurs mainly due to overdose, polypharmacy, error in prescribing or dispensing or dose adjustment in paediatrics, geriatrics or in patients with vital organ function failure. ADR can also occur due to noncompliance in medication by either patient or carer.

All drugs should be avoided if possible, during the first trimester of pregnancy. Drugs should be prescribed in pregnancy only if the expected benefits to the mother are thought to be greater than the risk to the foetus.

Prevention of ADRs

- Never use a drug without good indication. If the patient is pregnant do not use a drug unless the need for it is imperative
- Ask the history of previous reactions, allergy or idiosyncrasy to drugs
- Ask the patient if s/he has been taking other drugs now or recently. Drug interactions can occur. Certain drugs also interact with food
- Make suitable dose adjustments for the elderly and for patients with hepatic or renal disease. Pharmacogenetic factors may also be responsible for variations in rate of metabolism of drugs, e.g. INH
- Prescribe as few drugs as possible, use drugs with which you are familiar and give clear instructions so that you are understood
- Use drugs cautiously and if serious reactions are expected, advise patient to contact health workers. If not managed, refer patient to higher-level health facility
- Always report ADR to national pharmacovigilance system at the DDA.

द्रस्टव्यः स्वास्थ्य संस्थामा देखा पर्न आएका औषधिको नकारात्मक असर वारेसंलग्न फाराम भरी जिल्ला जन/स्वास्थ्य कार्यालय मार्फत औषधि व्यवस्था विभाग, बिजुली बजार, काठमाण्डौमा पठाउनुपर्नेछ

A decorative dotted line starts from the top right, goes left, then down, then right, and finally down to the left. There are also two solid grey rounded rectangular shapes: one in the top right corner and one in the bottom left corner.

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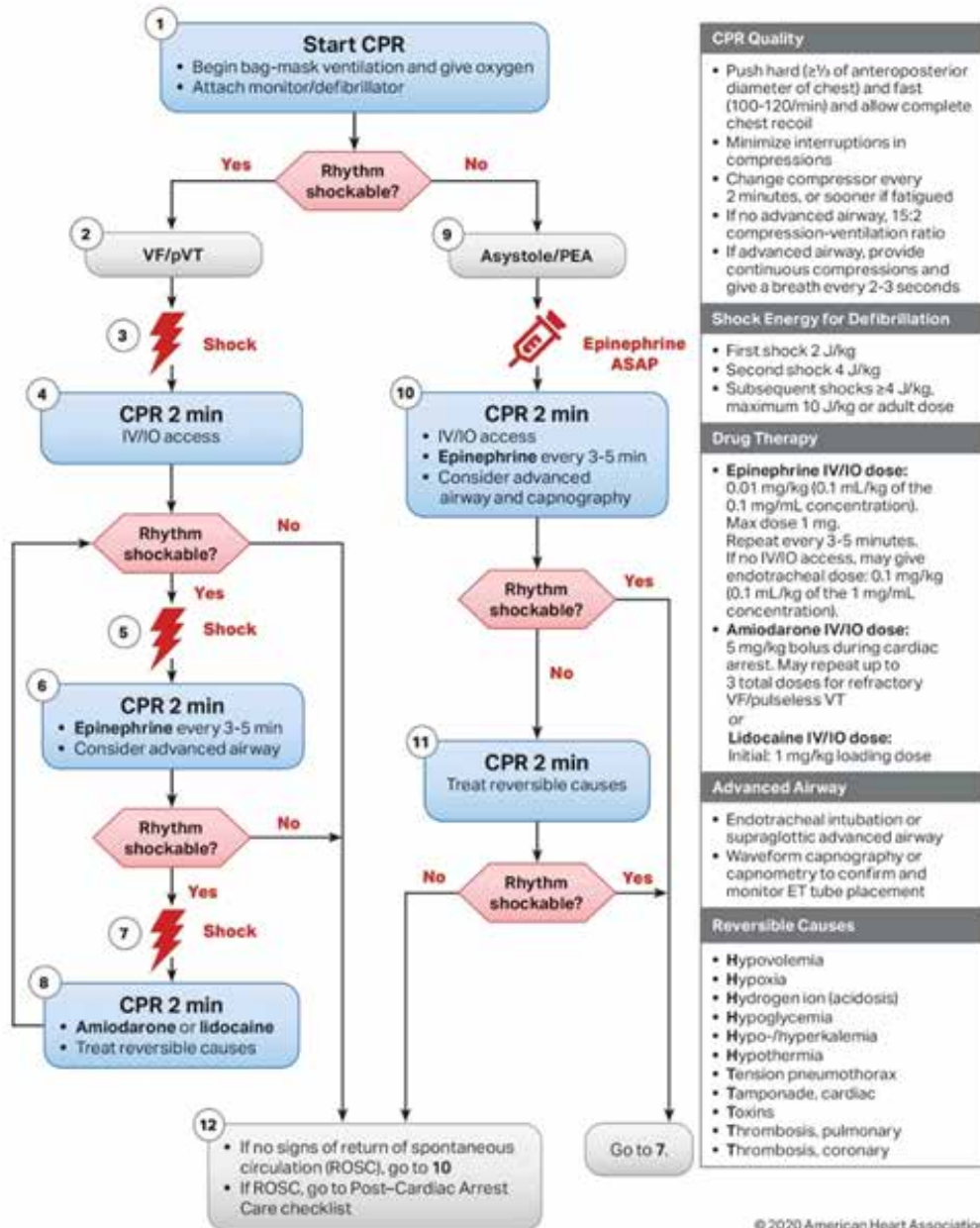
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ANNEXES

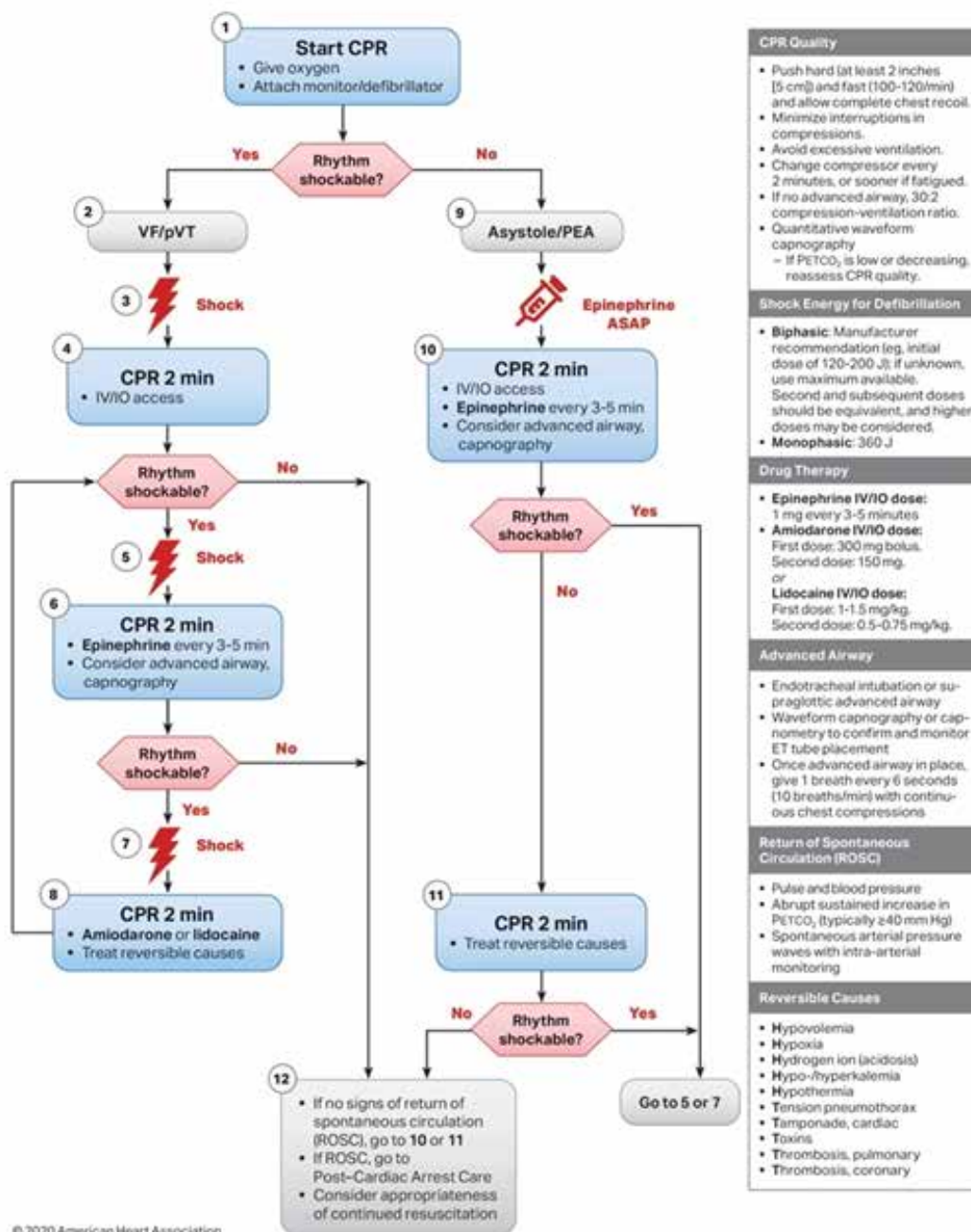
Annex 1: Pediatric Cardiac Arrest Algorithm

Figure 11. Pediatric Cardiac Arrest Algorithm.



Annex 2: Adult Cardiac Arrest Algorithm

Figure 4. Adult Cardiac Arrest Algorithm.



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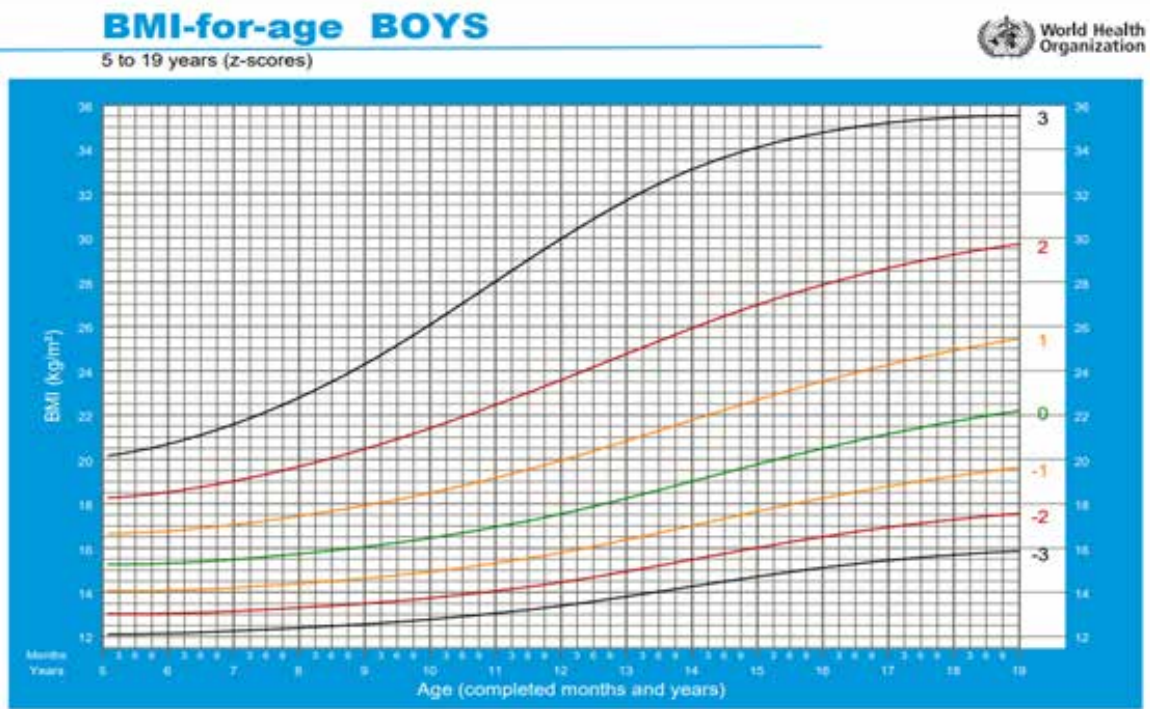
7

CPR Quality
<ul style="list-style-type: none"> • Push hard (at least 2 inches [5 cm]) and fast (100-120/min) and allow complete chest recoil. • Minimize interruptions in compressions. • Avoid excessive ventilation. • Change compressor every 2 minutes, or sooner if fatigued. • If no advanced airway, 30:2 compression-ventilation ratio. • Quantitative waveform capnography <ul style="list-style-type: none"> – If PETCO₂ is low or decreasing, reassess CPR quality.
Shock Energy for Defibrillation
<ul style="list-style-type: none"> • Biphasic: Manufacturer recommendation (eg, initial dose of 120-200 J; if unknown, use maximum available). Second and subsequent doses should be equivalent, and higher doses may be considered. • Monophasic: 360 J
Drug Therapy
<ul style="list-style-type: none"> • Epinephrine IV/IO dose: 1 mg every 3-5 minutes • Amlodarone IV/IO dose: First dose: 300 mg bolus. Second dose: 150 mg, or • Lidocaine IV/IO dose: First dose: 1-1.5 mg/kg. Second dose: 0.5-0.75 mg/kg.
Advanced Airway
<ul style="list-style-type: none"> • Endotracheal intubation or supraglottic advanced airway • Waveform capnography or capnometry to confirm and monitor ET tube placement • Once advanced airway in place, give 1 breath every 6 seconds (10 breaths/min) with continuous chest compressions
Return of Spontaneous Circulation (ROSC)
<ul style="list-style-type: none"> • Pulse and blood pressure • Abrupt sustained increase in PETCO₂ (typically ≥40 mm Hg) • Spontaneous arterial pressure waves with intra-arterial monitoring
Reversible Causes
<ul style="list-style-type: none"> • Hypovolemia • Hypoxia • Hydrogen ion (acidosis) • Hypo-/hyperkalemia • Hypothermia • Tension pneumothorax • Tamponade, cardiac • Toxins • Thrombosis, pulmonary • Thrombosis, coronary

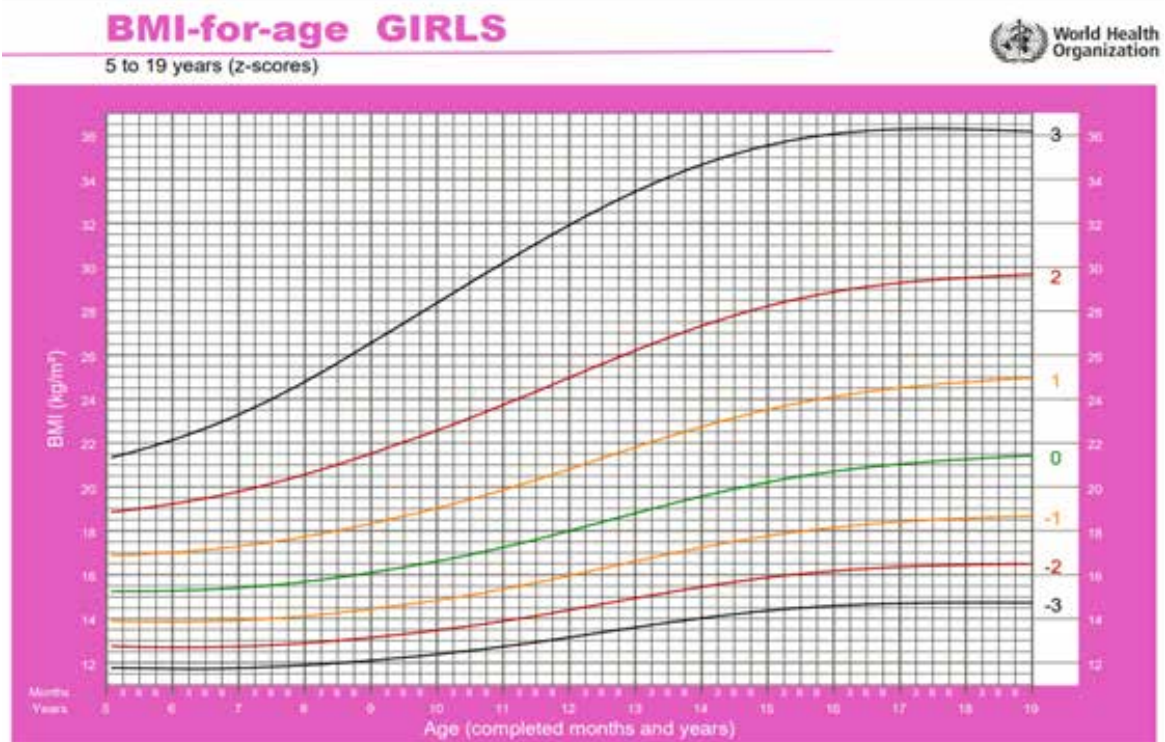
RTH Card for growth monitoring for under-five boys.

Annex 4: BMI Chart for Boys and Girls (Age: 5-19 years)

BMI chart for boys (aged 5-19 years)



BMI chart for girls (aged 5-19 years)



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